MIDI Controllers Guide

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Pro Tools®

MIDI Controllers Guide

Version 4.1

Digidesign Inc.
3401-A Hillview Avenue
Palo Alto, CA 94304
tel: 650·842·7900
fax: 650·842·7999

Technical Support (USA):
650·842·6699
650·856·4275

Product Information:
800·333·2137
Fax on Demand: 1-888-USE-DIGI (873-3444)

World Wide Web:
www.digidesign.com

Digidesign FTP Site:
ftp.digidesign.com

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Pro Tools 4.1 Credits

Program Management
Charles Weidmann, Dave Lebolt, Jan Biles

Product Management
- *Pro Tools Systems*: Wendy Abowd, Dave Lebolt
- *d24 Card*: Robert Campbell
- *Post Production Features*: Mike Newman
- *Mackie HUI Support*: Doug Wood, Dave Lebolt

Application Software
David Hipshman, Dave Conry, Mike Rockwell, Eamonn Fay

DAE
Peter Richert, Fritz Mueller, Toby Dunn, Martin Puryear, Doug Tissier, Joe Saracino, Joe Fontana

d24 Hardware
- *Engineering*: Andra Mitchell, Scott Bittle, Ken Lee, Gary Isobe, Frank Gunady, Joe Javier, Kent Shephard
- *Assembly*: Vicky Moreno, Jenny Wan and Linda Chan.
- *Manufacturing Engineering Group*: Kerwin Yuen, Tom Hua

DSP Plug-In Software
Colin McDowell, Mark Jeffery, Youngmoo Kim, Paul Neyrinck

Software Testing
Cory Verbin, Akil Wemusa, Glenn Schoonmaker, Michael Van Landingham, Nancy Reynolds, Robert Jasman, Seth Worden, Steve Rosenthal, Tim Walters, Billy Adams, Mark Camp, Mike Berkley, Tim van den Berg, Kevin Turner, Larry Thrasher, Will Bembo, Andrew Yarborough

Sustaining Engineering
Dimitri Vandellos, Sal D'Amato, Chris Now, Demetri Patukas, David Hearst, Jim Terry, Dan Maher, Tom McTavish

Design
Dani Rasmussen, Van Chuchom

Manufacturing
Des Medeiros, Oliver Nocedal, John Spangler and the entire 980 crew

Marcom
Karen Robb, Alison Smith, Cathy Cresci, Brad Vosburg, Jean Williams, Karen Moreland, Andrea Mounts, Kelly Williamson, Kristine Day, Mark Kirchner, Martin Berneburg, Mary Stevens, Natalie Nickel, Paul Smith, Sirpa King, Stefania Pomponi Butler

Developer Relations
Ed Gray

Pro Tools User's Guides
Tom Dambly, Mike Freitas, David Kwan, Mark Wilcox

Customer Support
Michael Abowd, Patrick Anding, Nick Benz, Dan Berkery, Beto Carvalho, Alexia Chandrinos, Will Collier, Jon Connolly, Mike Cuddy, Ian Duncan, Pascal Flork, Jeff Gedert, Bruno Godet, Adrian Hasselhuber, Tae Kang, Sue Kasper, Joel Krantz, Peter Kulmars, Mike Kutulas, Alberto La Valle, Bill Latham, Jennifer MacKnight, Mari Matsuo, Kevin Miller, Tammi Miller, Bryan Myers, Simon Price, Tony Puig, Florian Reiterer, Jake Schaefer, Sander van der Reijken, Jeffro™, Siebo

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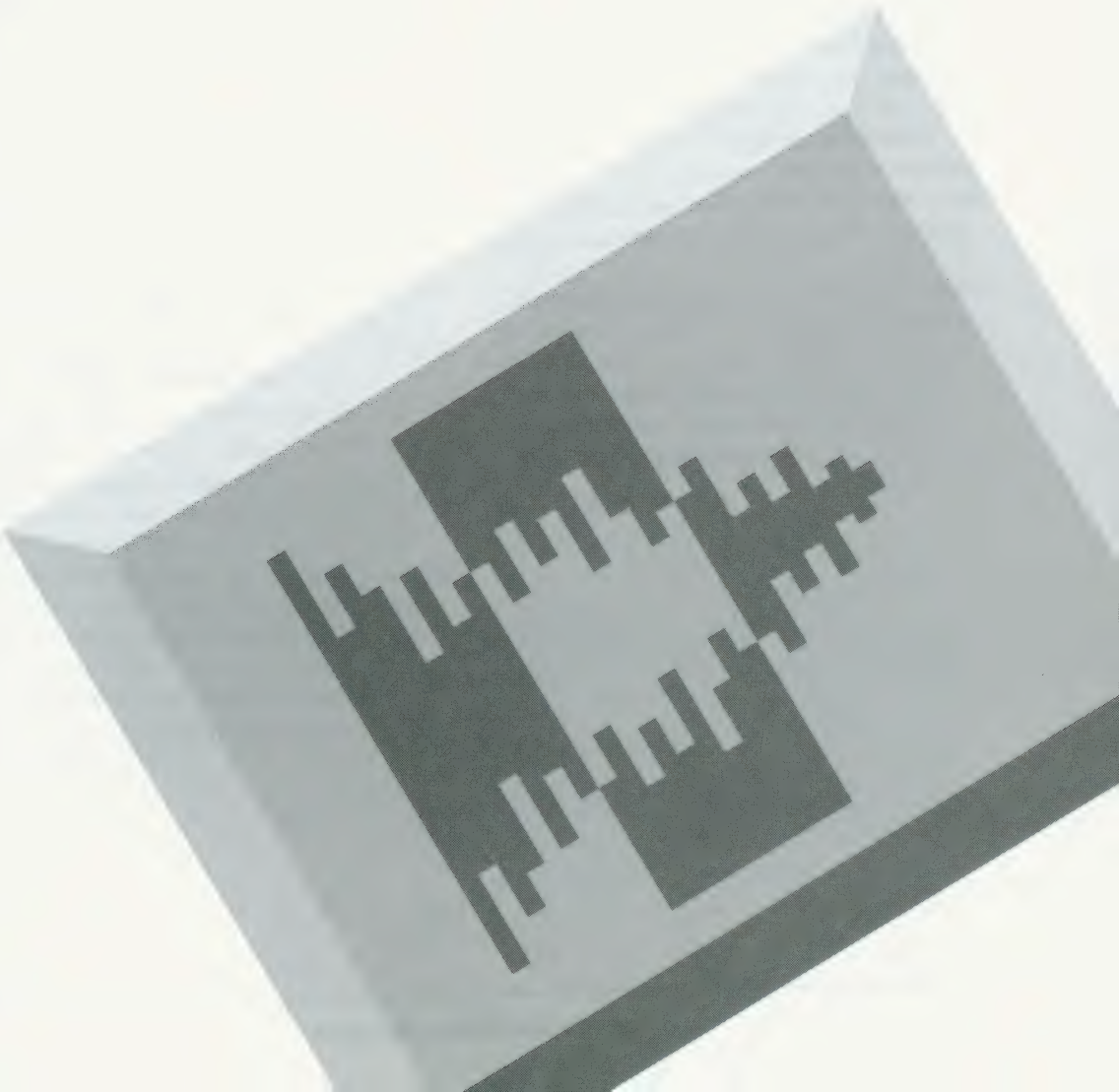
Working with MIDI Controllers



Working with MIDI Controllers

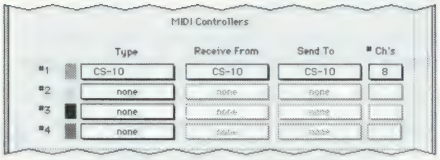
Introduction

Although the mouse is a very useful control device, it is limited in a mixing environment because it only allows you to adjust a single fader or other on-screen controller at a time. This is much more cumbersome than using your hands on a standard mixing board, where you can move multiple controls at once.

To give you tactile control over the power of Pro Tools' mixing capabilities, Pro Tools allows you to use up to four MIDI controllers to move faders and other Pro Tools controls on screen. You can use the controller's faders to adjust Pro Tools' on-screen level and pan faders, transport switches for motion control, or jog wheel for scrubbing and shuttling audio.

MIDI Controller Personalities

"MIDI Controller Personalities" allow Pro Tools to recognize and communicate with popular MIDI controllers such as the Mackie HUI™, any member of the JL Cooper's CS-10™ series (including the CS-10²™ and CS-10ˣ™ expander modules), Peavey's PC-1600™, and Penny & Giles's MM-16™/DC-16™. MIDI Controller Personalities are stand-alone files that reside in the Controllers folder within the DAE Folder. The DAE folder is inside the System Folder. Pro Tools scans the MIDI Controller Personalities folder whenever you open the Peripherals dialog in the Setups menu and assign a MIDI controller.



The MIDI Controllers section in the Peripherals dialog

Once enabled, MIDI Controller Personalities allow MIDI controllers to access most of Pro Tools' on-screen controls, such as level faders, pan, mute, solo, sends, transport, and scrub/shuttle. In addition, basic Pro Tools commands for creating selections and regions, zoom views, memory locations, and enabling online/offline status are accessible, along with modifier key control (Shift, Control, Option, and Command).

Currently, Pro Tools supports Controller Personalities for Mackie Design's HUI, JL Cooper's CS-10, Peavey's PC-1600, and Penny & Giles's MM-16/DC-16. Other controllers may be supported in the future, as Digidesign and third-party development partners expand the Pro Tools product line.

MIDI Controller Terms

Before setting up your MIDI controller, here are a few terms and rules that apply to the use of MIDI controllers with Pro Tools:

- A **bank** is a group of controls that are the same (e.g. faders, rotary controls, or switches) and that are arranged in discrete channel strips. The controller's **bank size** or **bank width** corresponds to the maximum number of these controls that your controller supports. For example, an MM-16 or DC-16 consists of a bank of 16 continuous-belt faders. This is different from the HUI and from the CS-10 family, which consist of banks of eight faders.
- If you have more than one controller, your bank can be "wider" (up to 64 channels using four Penny & Giles controllers). Pro Tools allows you to **bank swap** with your controller to access many on-screen channel strips with relatively few physical controls. Bank swapping is the process by which Pro Tools lets you switch from one virtual, on-screen bank of channel strip faders to another. For example, when using a single CS-10, on-screen channel strips 1-8 will be bank #1, channel strips 9-16 will be bank #2, channel strips 17-24 will be bank #3, and so on. You can page through these banks using the controllers' bank swap switches.
- There are many other switched controls and a jog/shuttle wheel on these controllers, but these others are **global controls** that are not "banked" or "paged." Global controls perform single functions that never change. For example, transport switches never change their function; they *always* remain as transport switches.

If you use more than one controller of the same type, Pro Tools will support use of duplicate controls from either control surface. However, only the controller assigned to the first MIDI Controller position in the Peripherals dialog will have access to Plug-In editing.

- Pro Tools allows you to "mix and match" MIDI controller types, and have them act as a single bank. For example, you could use a HUI, MM-16/DC-16, CS-10 and PC-1600 altogether at the same time with Pro Tools, which would create a MIDI controller console that is 48 channels wide. When you *bank swap* with this extended console, you will be switching 48 faders at a time.

Configuring MIDI Controllers as OMS Devices

Before using a MIDI controller for hands-on control of Pro Tools, you must first configure your MIDI controller as an OMS device and then enable it in Pro Tools' Peripherals dialog.

If you have not installed and configured OMS as described in the Pro Tools System Installation Guide, please do so now before continuing with this guide.

To configure a MIDI controller:

In OMS Setup:

1. Make sure that your MIDI controller(s) are connected to your MIDI interface(s), and that the MIDI interface is connected to the Macintosh. Make sure all devices are powered on.

2. Launch the OMS Setup application. (You can also launch OMS Setup from within Pro Tools by choosing the *OMS Studio Setup* command in the Setups menu.) The OMS Setup window appears.

3. From the Edit menu, choose the *Preferences* command to open the Preferences dialog, make sure the "Use Apple Serial DMA driver when available" option box is *unchecked*, and then click OK to close the Preferences dialog.

When running Pro Tools, always make sure the Apple Serial DMA driver is not being used by OMS. Leaving this option enabled will prevent Pro Tools from properly communicating with MIDI devices.

4. From the Edit menu, choose the *OMS MIDI Setup* command, and make sure the "Run MIDI in background" option is selected. An "X" in the checkbox indicates that it is selected. (Selecting this option allows Pro Tools to continue receiving MIDI data from a controller when switching to another OMS-compatible application.)

5. From the Studio menu, choose the *New Device* command.

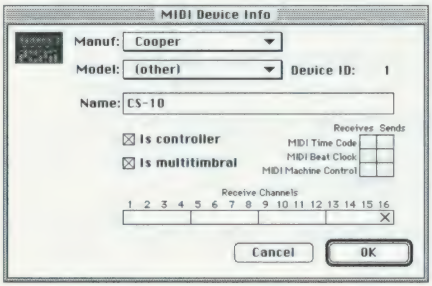
6. In the MIDI Device Info window that appears, select your MIDI controller in the *Manufacturer* and *Model* pop-up menus. If the Manufacturer and Model names are not listed in these menus, type the name of your controller in the *Name* field.

7. Make sure both *Is Controller* and *Is Multitimbral* are selected.

8. Make sure *Receives* and *Sends* for *MIDI Time Code*, *MIDI Beat Clock*, and *MIDI Machine Control* are not selected.

9. Under *Receive Channel(s)*, select the channel for sending and receiving data from the MIDI controller. If your MIDI controller is the only device connected to a port on a multi-port MIDI interface (such as the MOTU's MIDI Time Piece II or Opcode's Studio 4), you can leave all receive channels checked, since there will be no potential channel conflicts.

Both the Penny & Giles MM-16/DC-16 and the JL Cooper CS-10 main unit always transmit on MIDI channel #16; the optional eight fader CS-10x expander units always transmit on MIDI channel #15. The Mackie HUI always transmits on channel #1. However, the Peavey PC-1600 allows you to select the MIDI channel to receive data.

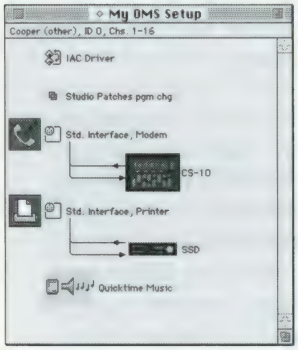


Defining a MIDI controller as an OMS MIDI Device (using the JL-Cooper CS-10 as an example)

10. Click *OK* to close the MIDI Device Info window.

11. Back in the OMS Setup window, connect the MIDI controller to the correct OMS port location or MIDI interface. To do this, drag the MIDI controller icon onto the icon for the desired port or MIDI interface. Arrows connecting the MIDI controller to and from the desired port or MIDI interface signify a connection has been made.

12. (Optional) You can change the MIDI controller icon to match the visual look of your controller, by clicking the icon and choosing the Device Icon command in the Studio menu.



Connecting the MIDI controller to the correct port or MIDI interface in the OMS Setup window

13. You can configure additional MIDI controllers by repeating the above steps. Pro Tools can accommodate up to four MIDI controllers. However, make sure that none of the controllers are assigned to the same MIDI port and channel assignment.

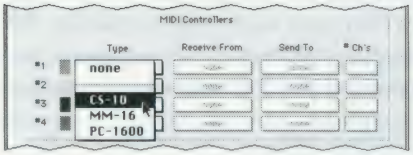
14. Save the changes to your current OMS Setup document.

In Pro Tools:

15. If you are using the Mackie HUI, make sure *Active in Background* is enabled (checked) in the Options menu.

16. From the Setups menu, choose the *Peripherals* command. The Peripherals dialog will appear.

17. In the MIDI Controllers field, choose your MIDI controller device name from the *Type* pop-up menu.



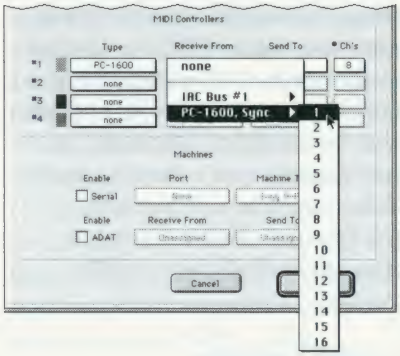
Choosing the type of MIDI controller

18. Next, choose the OMS source and destination for your MIDI controller. These should correspond to input and output ports for your MIDI controller that you defined in your current OMS Setup document

19. Choose the desired OMS source port from the *Receive From* pop-up menu.

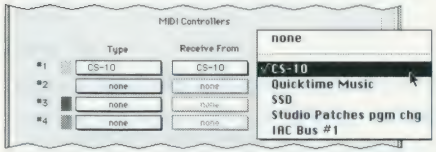
Choosing the OMS source port to receive data from the MIDI controller

20. Additionally, if you are using the PC-1600, select in the submenu for the OMS source port the desired MIDI channel to receive data. (Both the MM-16/DC-16 and the CS-10 main unit always transmit on MIDI channel #16, and the optional eight fader CS-10^{x} expander units always transmit on MIDI channel #15.)



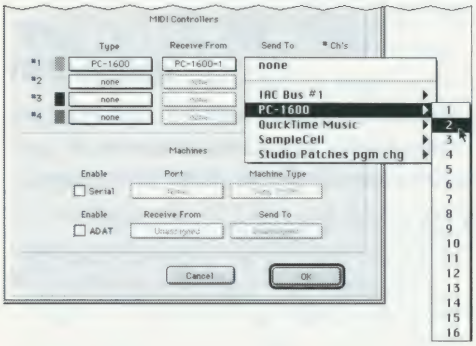
If you are using a PC-1600, choose the MIDI channel to receive data in addition to the OMS source port

21. Choose the desired OMS destination port from the *Send To* pop-up menu.



Choosing the OMS destination port to send data to the MIDI controller

22. If you are using the PC-1600, select in the submenu for the OMS destination port the desired MIDI channel to transmit data. (Both the MM-16/DC-16 and the CS-10 main unit always receive on MIDI channel #16, and the optional eight fader CS-10^x expander units always receive on MIDI channel #15.)



If you are using a PC-1600, choose the MIDI channel to send data in addition to the OMS destination port

23. If your MIDI controller has more than eight channel strips (such as JL Cooper's CS-10[2] with additional CS-10^x expansion modules), or if you are using multiple devices of the same type in series, click and hold down the mouse in the box under *# Ch's*. In the pop-up menu that appears, choose the appropriate number of channel strips.

Choosing the number of fader channels for the MIDI controller

24. Click *OK* when you have finished.

25. You can configure additional MIDI controllers (for a total of four) by repeating the above steps. However, make sure that none of the controllers are assigned to the same MIDI source and destination ports or channels in the OMS Setup or Pro Tools' Peripherals dialog.

26. In Pro Tools' Mix window, you will notice that the channel strips corresponding to a "bank width" of faders that the first MIDI controller is able to access are highlighted in *blue*. The number of faders in a "bank" will correspond to your controller type, and to the number of channels specified in the *#Ch's* pop-up menu.

27. The blue outline appears because each controller choice in the *Peripherals* dialog has an identifying color associated with it (#1 is blue, #2 is yellow, #3 is light blue, and #4 is violet). Pro Tools will create a colored outline around the *channel strip name* at the bottom of each fader in any bank governed by your controller. If you enable additional controllers, Pro Tools will color code the faders associated with *their* banks with the appropriate highlight color that corresponds to the numbered controller (#1-4) in the Peripherals dialog.

28. Move a fader or knob on your MIDI controller, and the corresponding on-screen control will move. *You may initially have to repeat this step a few times to familiarize yourself with the way your MIDI controller works in relation to Pro Tools' Mix window.*

If your Mix window has other on-screen channel strips that are not currently accessed by your MIDI controller, you can access them by *bank swapping* the current controlled fader strips in groups or one at a time. (Bank Swapping is covered in the next section).

In addition to on-screen fader and knob control, your MIDI controller can access basic Pro Tools commands for creating selections and regions, setting zoom views and memory locations, and enabling online/offline status, along with some modifier key controls whose functions correspond to their Macintosh keyboard equivalents (Shift, Control, Option, and Command). The switch functions for supported MIDI controllers are listed in the chapters for the respective controllers.

As long as your MIDI controller is enabled in the Peripherals dialog, Pro Tools will automatically scan the ports for your controller each time you launch the program. With the exception of the Mackie HUI, if enabled controllers are *not* found, Pro Tools will still behave as if they are connected. For example, bank outlines will still appear for your controller(s) on the appropriate fader channel strips. If there is no response in Pro Tools from movements on your controller, be sure to check all power and MIDI connections.

Removing a MIDI Controller

To remove an enabled MIDI controller:

1. From the Setups menu, choose the *Peripherals* menu item. The Peripherals dialog will appear.

2. In the MIDI Controllers field, choose *None* from the *Type* pop-up menu for the controller you wish to remove.

3. Repeat the last step as needed to remove additional controllers.

4. Click *OK* when you have finished.

MIDI Controller Width and Bank Swapping

In the Peripherals dialog is the *# Ch's* pop-up menu for choosing the number of faders channels for your MIDI controller. Once Pro Tools knows how many channel strips wide the controller is, bank swapping is optimized for the current controller configuration. Bank swapping allows the controller to "swap" the on-screen mixer channel strips it is currently controlling in "bank widths" that correspond to its total number of available controls, and thereby access other mixer channel strips.

Pro Tools allows you to swap banks of 8 to 64 channel strips at a time (depending on the type of MIDI controller), or shift the bank over one channel strip at a time. For example, the CS-10 can be identified as being 8, 16, 24, or 32 channel strips wide. By setting the number of channel strips to 32, pressing a bank select switch on the CS-10[2] unit would bank swap 32 channel strips at a time. Pro Tools shows which tracks are currently under remote control by outlining the channel strip's name area in the highlight color associated with its controller number (#1-4) you have selected in the Peripherals dialog.

Each MIDI controller type has its own key commands for bank swapping. These commands are discussed in the coming chapters for the respective controllers.

User Tip

When working with faders, the Control key on both the computer keyboard and the MIDI controller serves as a temporary "clutch" for disengaging a fader from a Mix group. To move a fader independently from its Mix group, hold down the Control key, move the fader to the desired level, and then release the Control key. However, note that the Control keys on the computer keyboard and the MIDI controller are not presently reciprocal. You must depress the Control key on your controller in order to move a controller's fader independently from its Mix group.

"Pass Through Null" Fader Automation

All of the MIDI controllers currently supported in Pro Tools do not have *touch sensitive* controls, with the exception of the Mackie HUI which does have touch senstive faders and DSP V-Pots, and the Penny & Giles controllers which uses continuous belt controls. If a MIDI controller does not have touch sensitive controls, Pro Tools needs some way to know when a control is being moved, in order to avoid creating large discontinuities in automation recording. To do this, Pro Tools employs a "pass through null" function.

With a MIDI controller that does not have touch sensitive controls, *Touch* and *Latch* automation modes will begin recording only when the fader or other control has "passed through" the present automation playlist value. (Automation is discussed in the mixing chapter in the *Pro Tools Reference Guide*.) In these modes, the "auto-matching" LEDs on individual channel faders in Mix window indicate which way a fader needs to be moved to match the pre-existing data.

Triangular AutoMatch LEDs (located at left) light up to indicate which direction to move faders to match original automation levels.

When fader position and data match, the track will begin automation recording and will punch out of automation recording either after the "touch time out" has expired (*Touch* mode) or when playback stops (*Latch* mode). This mode of behavior is invaluable because you no longer have to manually "null" the fader to match the preexisting automation level at the punch-in point before playback begins.

Why is this useful? For illustration purposes, let's take a look at what would happen if this feature was *not* present. The CS-10 and PC-1600 do not have touch-sensitive motorized faders (or "belt-faders" as on the MM-16/DC-16 which can be continuously updated).

Let's say you are adjusting a track's level whose *automation track* is playing back around +1dB, but the *controller* fader position is towards the *bottom* of its travel. If you move the fader in AutoTouch mode, Pro Tools will begin to write automation data, and suddenly the level of your track will drop from its *nominal* level of around +1dB, down to the fader's far lower level. This effect is clearly not desirable. However, this does not happen on touch-sensitive motorized fader controls or the MM-16/DC-16, on which the relative position of the faders *always* matches the automation playback level.

Fortunately, with Pro Tools' "pass through null" capability, you will not "punch-in" to your automation track until you have "passed through" the null point and "matched" the automation track's fader playback. This elegantly solves the problem. The "auto-matching" LEDs on-screen in the Mix window indicate which way the fader must be moved in order to pass through the null point.

The Mackie HUI's faders and DSP V-Pot controls act as touch-sensitive controls and will overwrite automation data as soon as they are moved.

About Automating Switched Controls (Mutes, Plug-In Bypass, etc)

When automating switch controls (or, non-fader controls), Pro Tools will write automation for as long as the switch/button is depressed.

For example, let's assume that you have just written a series of mute on/off states in quick succession on a channel, but after listening back you decide you don't like the automation and want to erase the previously recorded mute automation data. The "manual" method for clearing all automation data would require you to move to the edit window, switch to the "Mute" view on the Track Format pop-up selector, select the mute automation data and delete them.

With Pro Tools, you have the option of taking advantage of "virtual touch-sensitive" switch controls (available for on-screen switch controls and external MIDI controller switches). With this fuctionality, you don't have to perform all of these mouse-driven steps. Instead, simply record another automation pass on that track and hold down the mouse on the Mute switch when it reaches the state you want to keep ("on," for example). (Or hold down the actual mute switch on any of the controllers). As you continue to keep the mouse (or switch) depressed, Pro Tools "knows" that you're touching the control, and erases the underlying changes in mute state that occur up *and until* you press "stop." Now, you've cleared the previous mute changes on the channel(s) of interest.

Controlling DSP Plug-Ins

(for TDM systems only)

Pro Tools also has the ability to control the currently active DSP Plug-In from the *first* MIDI controller enabled in the Peripherals dialog. When working with Plug-In editing, a *red* outline will also appear around the name of the channel strip whose Plug-In is currently accessed for editing.

Since some of the DSP Plug-Ins have more controls than a MIDI controller has physical faders and knobs, these Plug-Ins are controlled through a collection of control "pages." The MIDI controller first defines a "page size" based on its number of physical controls, and then the DSP Plug-In's controls are grouped accordingly into pages of this size. The MIDI controller pages through the Plug-In's total number of controls in groups of *x*, where *x* is the number of physical

controls on the controller. For example, if you are controlling a Plug-In with 20 controls using the CS-10 which has six rotary knobs, then there are four or more pages of controller assignments, depending on how the controls have been arranged on the various Plug-In pages.

In many cases, there will be a one-to-one relationship between the number of controls and the number of pages, but this is not always the case. Some Plug-Ins have an odd number of controls, or have controls that don't contain a good page "break" where controls should logically be grouped together. In these cases, there may be Plug-In pages that contain "blank" locations where a given control is not active.

To edit a particular control, simply move to the appropriate page and turn the appropriate knob or fader (depending on your controller). The Plug-In parameters that a controller is able to access in the current page will be highlighted *blue*. Automatable Plug-In controls are shown in *red* when in any *write* automation mode (Auto Write, Auto Touch, or Auto Latch), and will turn *green* when in Auto Read.

Each MIDI controller type has its own key commands for moving through the DSP Plug-In control pages. These commands are discussed in the coming chapters for the respective controllers.

Controlling DSP Plug-Ins

(for TDM systems only)

Pro Tools allows you to automate any Plug-In control, as long as your Plug-In supports automation (all Digidesign Plug-Ins do). You can do this by assigning a control from a list of automatable controls for each Plug-In. (You can learn all about automating Plug-Ins in the Mixing chapter of the Pro Tools Reference Guide.)

With all of the current MIDI Controllers except the Mackie HUI, there is no distinction made between *continuous* controls (which vary in level over many steps), and *switched* controls (which have only *on* and *off* states). This means that with all controllers but HUI, you will be using faders or knobs to switch "on/off" or "in/out" controls on Plug-Ins.

Controls are generally mapped from the top left to the bottom right of the Plug-In, but the actual paging of the Plug-In is left to the Plug-In developer. As mentioned earlier, some controls may be inactive for certain pages due to functionality or paging constraints, but every control will eventually show up over the number of pages supported for that Plug-In. Plug-In paging tables for each of the Digidesign Plug-Ins are included in the Appendix of this manual.

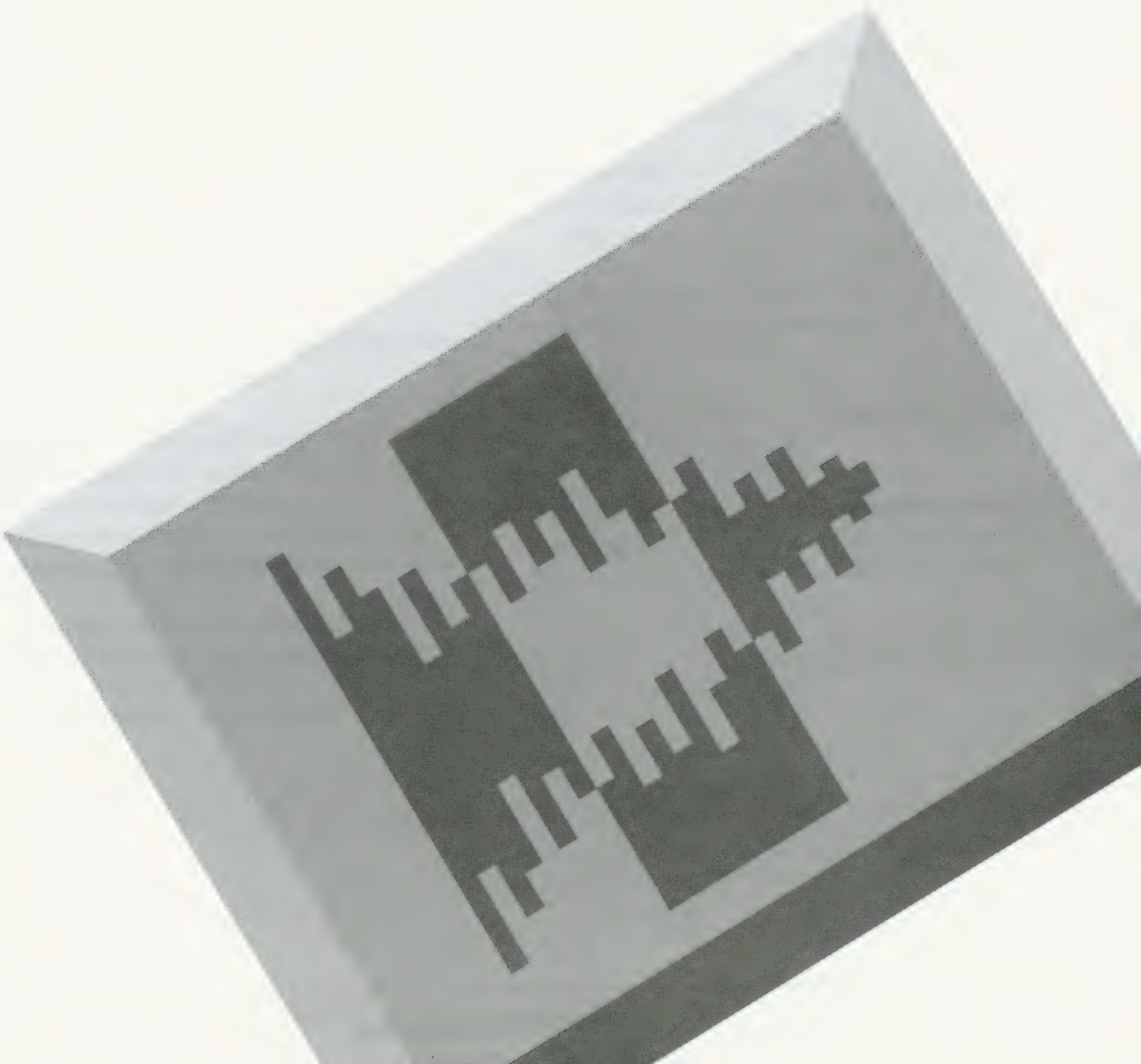
An Important Note About Third-Party Plug-Ins

Third-party TDM Plug-Ins from some of Digidesign's Development Partners may need to be updated for compatibility with Pro Tools' new dynamic automation capabilities, as well as controller-based Plug-In editing and librarian functionality. Plug-In control paging behavior is determined by the Plug-In developer, and not by the Pro Tools application. Please contact the manufacturer of your Plug-Ins for information about the latest versions, and what to expect in terms of feature support.

Additionally, if you are using the Mackie HUI controller and attempting to edit a Plug-In that has not been updated to display information properly on HUI, HUI will display "Your version of the Plug-In cannot be edited from the HUI" in its DSP EDIT/ASSIGN VFD. Refer to the Mackie HUI Controller chapter for more information on accessing and editing Plug-Ins.

Having read this chapter, you should understand the basic concepts for operating Pro Tools using MIDI controllers. Now, proceed through the next few chapters to learn how to use your particular model of MIDI Controller to control Pro Tools functions.

Mackie HUI Controller



Mackie HUI Controller

Introduction

The Mackie HUI™ (Human User Interface) controller is the result of collaborative work between Digidesign and Mackie Designs. The Mackie HUI is a dedicated mixing and editing controller designed to interface seamlessly with Pro Tools. Dedicated HUI controls allow easy navigation through Pro Tools functions, including mixing, editing, grouping, Plug-In control, and automation. Through the use of motorized faders and V-POTs™, automation can be handily performed and given visual reference. Communication between HUI and Pro Tools is bidirectional, meaning controller movements from HUI are reflected in Pro Tools' on-screen controls, and vice versa.

Key features of HUI include:

Tactile and visual interfacing:

- Eight motorized, touch-sensitive faders with dedicated fader bank and channel selectors
- Illuminated V-POTs for controlling channel routing, pans, sends, and other values. V-POTs are Mackie's unique, virtual rotary potentiometers that provide the touch and visual feedback of analog knobs while providing instant recall capabilities for digital levels.
- Hi-resolution, LED scribble strip on each channel for updating the channel identification and assignments
- Stereo LED meters on each channel

Dedicated Pro Tools and Macintosh functions:

- Dedicated Macintosh-style modifier key switches and numeric entry keypad
- Dedicated Pro Tools switches for window selection, groups, editing and transport control

Navigation and cursor controls:

- Scrub/Shuttle wheel with operation mode switches
- Zoom/Navigation/Selection cursor switch matrix
- Time Counter display

Plug-In control:

- Dedicated Plug-In section for assigning and editing DSP Plug-Ins
- VFD (Vacuum Fluorescent Display) for visual reference for Plug-In parameters

Studio integration:

- Analog control room monitoring section, talkback control, mic preamps, etc.

For suggested audio connections, stand-alone control room functions, and information on the rear panel, please refer to the *Mackie HUI User's Guide* included with your HUI.

Modal Dialog Messages: Troubleshooting

Before you being working with HUI, you should become familiar with some modal dialog messages which may appear occasionally in HUI's Vacuum Fluorescent Display (VFD) or on-screen in Pro Tools:

Pro Tools On-screen Dialog Warning

The Pro Tools software will occasionally display modal dialog messages in HUI's VFD. These messages will appear when illegal operations are attempted (a warning dialog will appear), or when errors occur in the course of normal operation (disk errors, etc.). When such messages appear in Pro Tools, you must close the dialog before continuing to use HUI.

If a modal dialog message appears in Pro Tools, HUI will display the following message in the VFD:

> "Pro Tools has a dialog on screen!
> ENTER = OK, F8/ESC = Cancel"

This message will continue to be displayed until the dialog is closed on-screen in Pro Tools or by using HUI (press ENTER to OK the dialog, or F8/ESC to cancel the dialog).

Pro Tools "Lost Communication" Dialog Message

If Pro Tools loses communication with HUI because power or a cable connection has been cut off, for example, HUI will display "OFFLINE" in the Time Counter Display. The following dialog will also appear on-screen in Pro Tools:

> "Pro Tools has lost communication with HUI.
> Please power-cycle HUI and check your connections;
> if HUI is working properly, communication will
> automatically be resumed. Note, if HUI is not in use,
> update the Peripherals dialog to prevent further warnings."

If Pro Tools has lost communication with HUI, follow the dialog on-screen: power down the HUI, wait a few seconds, and then power up the HUI again. If communication problems persist, make sure your cable connections are properly configured and secured. When Pro Tools has reestablished communications with the HUI, the far-right decimal point LED in the Time Code Display will flash, indicating that communication has been established and is valid. This bidirectional message is constant, and avoids problems that can occur if communication is lost between Pro Tools and HUI, or vice-versa. For example, if you accidentally unplug one of the MIDI in/out connection cables, this message would be interrupted, and you would be alerted with a warning message.

If HUI is not in use, be sure to remove it from the MIDI Controllers field in the Peripherals dialog, thereby preventing further warnings.

Active in Background Message

There are working setups when Pro Tools' *Active in Background* option should be checked in the Options menu. For example, if this option is not checked and another application (such as MIDI sequencing software) is brought to the foreground as the currently active application, HUI will display the following message in the VFD:

> "HUI is currently inactive because
> Active in Background is disabled in Pro Tools"

Be sure to enable *Active in Background* in the Options menu and HUI activity will be restored, even when an application other than Pro Tools is made currently active.

A Tour of the Mackie HUI Controller

The DSP EDIT/ASSIGN Section contains:

- DSP EDIT/ASSIGN Area for assigning inserts and editing Plug-In parameters
- VFD display

The Switch Matrix Section contains:

- Several Switch Matrices for master control of automation modes, group status, and editing

The SELECT/ASSIGN switch section contains:

- Assign/Edit switches for Sends, Pan, Input, and Output
- SELECT/ASSIGN display (single, four character LED dot-matrix type) for current pan, send, input or output status
- Default switch for resetting faders and V-POTs
- Master Record Ready, Insert Bypass, and Send Mute switches
- Bank/Channel navigation switches

The WINDOW switch section contains:

- Dedicated Window select switches to select active Pro Tools window for editing (Mix, Edit, Transport, Plug-In, Session Setup, and Memory Location)

The KEYBOARD SHORTCUTS switch section contains:

- Keyboard Modifier key section (Command, Option, Shift, Control)
- Switches for direct access to edit modes and tools
- Save and Undo

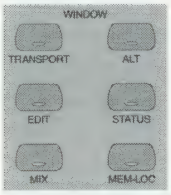
Each Channel Fader Strip contains:

- Touch-sensitive motorized fader
- Stereo LED meters for level indication
- Channel SELECT Switch for channel-based editing commands
- Four-character scribble strip LED dot-matrix display
- MUTE Switch
- SOLO Switch
- AUTO switch for enabling channel automation
- PAN/SEND V-POT Data Encoder with LED Ring for pan/send/assign editing
- Secondary V-POT SELECT switch (labeled "V-SEL") for selecting/muting channel's V-POT
- INSERT Switch brings up Plug-In for editing; switchable to per-channel Plug-In BYPASS
- REC/RDY (Record/Ready) switch for arming disk tracks for recording

The Master Section contains:

- Time Counter Display/Solo indicator
- Analog Monitoring Section
- Numeric Keypad
- Audition, Pre/Post, and In/Out Switches
- Transport Switches
- Scrub/Shuttle wheel
- Zoom/Navigation Cursor Switch Matrix

WINDOW Switches



Six WINDOW switches control the opening/closing and "active" status for standard and floating windows in Pro Tools. These switches are labeled TRANSPORT, EDIT, MIX, MEM-LOC, STATUS, and ALT:

- MIX and EDIT – Pressing the MIX or EDIT switch brings the selected window to the foreground, but any currently open floating windows (Transport, Memory Location, Session Setup Display and Inserts/Sends) will remain on top of it. Only one floating window and one non-floating window can be active at a time. The selected MIX or EDIT switch LED will remain lit, indicating the current non-floating, "active" window for editing.

- TRANSPORT – Pressing this switch opens/closes the Transport window.

- ALT – Pressing this switch opens/closes the Insert Editor for the currently selected Plug-In.

- STATUS – Pressing this switch opens/closes the Session Setup Display window.

- MEM LOC– Pressing this switch opens/closes the Memory Locations window.

- TRANSPORT, MEM LOC, STATUS and ALT – Pressing these switches brings the selected window to the foreground as the "active" floating window for editing. The Transport, Memory Location, Session Setup Display and Inserts/Sends windows are all floating windows, meaning that they will "float" over the current active window. The switch LED for currently active floating window will be lit, while the switch LEDs for others will turn off. If a floating window is already in the foreground, then pressing its corresponding switch will close the window.

Visibility of Inserts/Sends Editor

The ALT switch opens/closes the Inserts/Sends Editor for the currently selected Plug-In, as indicated in the DSP/EDIT VFD by the flashing insert on the INSERTS view, or by the currently active Plug-In on the PARAM view. When a Plug-In is selected for editing on HUI, the corresponding Inserts/Sends Editor for the Plug-In will also open in Pro Tools. Only a single Plug-In can be accessed and edited at a time.

Note that if the Inserts/Sends Editor for the currently selected Plug-In is closed, you can still edit the Plug-In using the DSP EDIT/ASSIGN section even though the Plug-In's interface is hidden. This "edit focus" mode of operation allows for maximum editing speed on HUI, avoiding the need for Pro Tools to continually redraw the Plug-In's interface on-screen.

KEYBOARD SHORTCUTS Section

Macintosh Modifier Key Switches

There are four switches that correspond to the various modifier keys on the Macintosh. These are labeled SHIFT/ADD, OPTION/ALL, CTRL/CLUTCH and ⌘-ALT/FINE. Using these modifiers in conjunction with other switches changes the action of those switches. For example, pressing and holding down the OPTION/ALL switch while pressing the SOLO or MUTE switch will solo or mute all channels.

EDIT MODE and EDIT TOOL Switches

The EDIT MODE and EDIT TOOL switches access the primary Edit function modes and tools:

- EDIT MODE – Pressing this switch repeatedly cycles through the four edit modes: Shuffle, Slip, Spot, and Grid.

- EDIT TOOL – Pressing this switch repeatedly cycles through the main edit tools: Zoom, Scrub, Trim, Select, Grabber, and Pencil (available when zoomed in at very close resolutions only).

Alternative methods exist for direct selection of a specific Edit Tool or Edit Mode, by holding down the EDIT MODE or EDIT TOOL switch and then pressing numbers on HUI's Numeric Entry Keypad:

- EDIT MODE + number 1 = enables Shuffle mode
- EDIT MODE + number 2 = enables Slip mode
- EDIT MODE + number 3 = enables Spot mode
- EDIT MODE + number 4 = enables Grid mode

- EDIT TOOL + number 1 = selects Zoom tool
- EDIT TOOL + number 2 = selects Scrub tool
- EDIT TOOL + number 3 = selects Trim tool
- EDIT TOOL + number 4 = selects Select tool
- EDIT TOOL + number 5 = selects Grabber tool
- EDIT TOOL + number 6 = selects Pencil tool (available only in close zoom display)

Note: *You can also use the Command key (Edit Tools) and Option key (Edit Modes) shortcuts along with the numeric keypad, as on the Macintosh keyboard, to perform the above functions.*

Access to Zoom parameters and Scrub functions can also be accessed through dedicated controls (described later in this chapter).

SAVE and UNDO Switches

The SAVE and UNDO switches perform Save and Undo functions corresponding to operations on the Macintosh.

The UNDO switch (⌘-Z) allows Undo/Redo of the last edit operation. The UNDO switch LED will be lit when the Undo function is available for use after an operation. The UNDO switch LED will flash when the Redo function is available.

The SAVE switch (⌘-S) LED will be lit if the session has changed from its currently saved state.

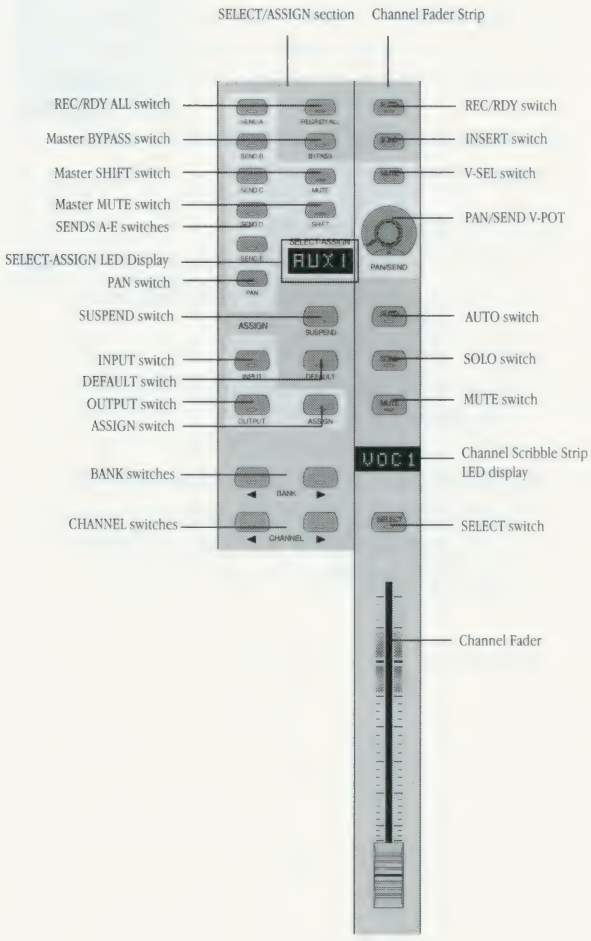
To save the changes in a session:

1. Press the SAVE switch. The SAVE switch LED will flash when first pressed, indicating the Save process has been armed.

2. If you wish to abort the Save process at this point, press the F8/ESC switch.

3. If you wish to complete the Save process, press the SAVE switch again. The SAVE switch LED will remain lit during completion of the Save process, and then afterwards will turn off.

Channel Fader Strip and SELECT/ASSIGN Sections



The Channel Fader Strip section of HUI is made up of eight channel strips, and is used in tandem with the global SELECT/ASSIGN switch section located to the left of the channel strips.

Channel Fader

The channel faders are used for level control of disk tracks, master faders, auxiliary inputs, and MIDI tracks. The channel fader is a touch-sensitive, motorized fader with a circuit that allows "take-over" from servo control, according to the automation status. Gain calibration ranges from infinity (bottom of fader travel) to +6 dB (top of fader travel), and fader resolution yields 0.1 dB over most of the fader's travel length for adjustment accuracy.

Channels are arranged in sets of eight contiguous strips, referred to as banks. A bank is indicated by a colored outline around the bank's track names in the Pro Tools Mix window. If there are fewer than eight channels/tracks on-screen, they will appear as active faders on HUI from left to right; unused faders will remain blank.

CTRL/CLUTCH "Clutch" Mode with Faders

Holding down the CTRL/CLUTCH switch and moving a fader will enable a temporary "clutch" mode that allows the fader to be moved independently of its mix group(s), if any. After releasing the CTRL/CLUTCH switch, the fader will track with its group(s) once again.

Moving Grouped Faders Other Than "Group Master"

The first fader in a mix group touched in any single mix operation becomes the *group master*. When the group master is established and moved, those faders that are in the same mix group and *not* concurrently touched will also move in a relative fashion. However, those faders that are in the same mix group but *are* concurrently touched are temporarily disengaged from the group, and they will move independently of the mix group. Once a fader that is temporarily disengaged is released, it will resume following the mix group master's movements.

At the time when the group master is released, if there are any faders in the mix group that are concurrently being touched, the fader which was touched earliest in time is automatically chosen to become the new group master. Subsequent moves of this new group master will cause all other untouched faders in the mix group to follow.

Here's an example of how to temporarily disengage grouped faders using a group master:

1. Groups three faders together into a mix group.

2. Touch fader #1 and move it. Upon touching fader #1, it becomes the group master. Moving fader #1 causes the other two faders to follow in a relative fashion.

3. While continuing to touch fader #1, touch fader #2. Since the group already has a group master, fader #2 becomes temporarily disengaged from the group. Moving fader #2 only affects fader #2. However, moving fader #1 will continue to move fader #1 and fader #3, since fader #3 remains untouched and intact within the group.

4. While continuing to touch fader #1 and fader #2, also touch #3. Fader #1 remains the group master but only controls itself, since the other two members of the group are currently disengaged.

5. Release fader #1. Since fader #1 was the group master, a new group master must be chosen. Of the remaining two faders in the group that are currently being touched, fader #2 was touched the earliest. Therefore, Fader #2 becomes the new group master.

6. Moving fader #2 now will result in fader #1 moving in relative fashion to it.

7. Now release fader #2. Fader #3 becomes the new group master, and fader #1 and fader #2 begin to follow fader #3.

8. Finally, release fader #3 and all faders cease to move.

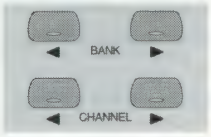
Level Meters

Along the top of HUI, there are eight stereo, 12-segment LED ladders for output level indication of individual channels. The LEDs indicate the following level increments (from top to bottom): 0, -2, -4, -6, -8, -10, -14, -20, -30, -40, -50 and -60 dB.

Meters match the peak reading features in Pro Tools (clip hold and separate peak hold). Pressing the F1 switch in the F-keys (Function keys) section clears clipped meters and last held peaks simultaneously.

Mono channels activate the left side of the meter pair only.

Bank Swapping and Channel Scrolling



Two sets of switches allow "bank swapping" (a bank is a set of eight channel faders), or scrolling in single channel increments. The BANK arrow switches swap eight channels to the left or right at a time. The CHANNEL arrow switches scroll one channel to the left or right at a time.

Bank-swapping and channel-scrolling behavior is mirrored in Pro Tools. Pro Tools channel strips will be banked into view automatically (unless this function is disabled in the Pro Tools Preferences window). Bank members are indicated by a colored highlighting that surrounds their channel strip names.

Keyboard Shortcuts

- Holding down the OPTION/ALL switch, press the BANK or CHANNEL switch to bank swap to the far-left or far-right bank position for the session. (Note that far-right bank-swapping will not "justify right." For example, if you have a session that contains 22 channel strips, holding down OPTION/ALL and pressing the right BANK switch swaps to a bank consisting of channel strips #17-22.)

SELECT Switch

This switch allows channel strips to be selected for grouping, deletion, assignment, and so on. When a channel strip is selected, this switch's LED lights. Selected channel strips remain selected even when not displayed in the current bank view.

Keyboard Shortcuts

- Holding down a channel strip's SELECT switch, press additional SELECT switches to add/subtract others.
- Holding down the SHIFT/ADD switch, press the desired channel SELECT switches to add/subtract from the selection.
- Holding down the OPTION/ALL switch, press any SELECT switch to select/deselect all channels (including "off-bank" channels).
- Holding down the ⌘-ALT/FINE switch, press any lit SELECT switch to change the SELECT status of the corresponding channel strip, and change all other channel strips to the opposite state.

If any or all channels strips are selected, pressing on its SELECT switch again will not deselect it. Instead, the SHIFT/ADD switch must be held down to deselect the channel strip.

REC/RDY Switch

The REC/RDY (Record/Ready) switch arms the corresponding channel strip's disk track for recording. The REC/RDY switch LED will flash when engaged (Record-ready) and remain lit when Pro Tools enters recording (Record).

MASTER REC/RDY Switch

This switch (located to the left of the REC/RDY switch row) acts as a REC/RDY master for disk tracks. If no channels are record-enabled, this switch arms *all* tracks. If any disk track (either "on-bank" or "off-bank") is armed for recording, the MASTER REC/RDY switch will flash. This informs you of any record-ready channels strips outside of the current bank on HUI or off-screen in the Pro Tools software. If any tracks are armed for recording, pressing the MASTER REC/RDY switch will disarm *all* tracks.

Keyboard Shortcuts

- Holding down the OPTION/ALL switch while pressing any REC/RDY switch changes the record-arming status of all disk tracks. For example, if you hold down the OPTION/ALL switch and press any channel strip REC/RDY switch which is not armed (LED is off), all disk track will be record-enabled (up to the maximum number of voices available for recording in your system).
- If you hold down the OPTION/ALL switch and press any channel strip REC/RDY switch which is already armed (LED is flashing), all disk channel strips will be disarmed from recording.
- Alternatively, pressing the Master REC/RDY ALL switch located in the SELECT/ASSIGN section toggles all armed REC/RDY switches on (LEDs are flashing) and off (LEDs are off).
- If multiple channel strips are selected, holding down both OPTION/ALL and SHIFT/ADD switches and pressing any REC/RDY switch on a selected channel will arm only selected channels for recording.

SOLO and MUTE Switches

These switches are used for channel Mute and Solo functions. When the MUTE and SOLO switches are enabled, their LEDs will light.

Soloed channels will flash the MUTE switch LEDs on all other channels that are not explicitly muted. (A flashing LED indicates an *implied* or *implicit mute*, meaning that the channel is muted only because other channels are soloed.) The MUTE switch LEDs on channels that are explicitly muted when others are soloed will be lit continuously (this is termed an *explicit mute*).

Keyboard Shortcuts

- OPTION/ALL switch + SOLO switch = clears/enables Solos on all channels
- OPTION/ALL switch + SHIFT/ADD + SOLO switch = clears/enables Solos on all selected channels

If there is at least one channel strip being soloed, pressing the OPTION/ALL switch and any SOLO switch will clear all solos, regardless of the solo state of the pressed channel strip. If there are no channel strips being soloed, pressing the OPTION/ALL switch and any SOLO switch will solo all the channel strips.

- OPTION/ALL switch + MUTE switch = clears/enables Mutes on all channels
- OPTION/ALL switch + SHIFT/ADD + MUTE switch = clears/enables Mutes on all selected channels

These keyboard shortcuts do not apply to Send Mutes when using the V-SEL switch (discussed later).

Pro Tools Solo and Mute Preferences

There are a few Pro Tools preferences relating to solo and mute to be aware of when working with HUI: Latch Solo Switches, Solo Safe, Solo Follows Mix Groups, and Mute Follows Mix Groups:

- Solo Safe – Locks out Solo Safe channels from *implied mute* state when other channels are soloed. Solo Safe status is discussed next.

- Latch Solo Switches – Determines whether pressing the SOLO switch on additional channel strips adds to the current Solo selection (known as *additive* or *latch on* soloing), or only one channel may be soloed at a time, effectively unsoloing previously soloed channels. This is defined in Pro Tools' Operation Preferences.

- Solo/Mute Follow Mix Groups – Determines whether soloing or muting individual members of a mix group changes the status of the entire group, or only of the individual member. If this preference is enabled, the status of an individual member can still be changed independently of its group by simultaneously pressing the CTRL/CLUTCH switch. This is defined in Pro Tools' Automation Preferences.

Solo and Record Safe Modes

Channel strips can be placed into Solo or Record Safe modes, meaning that safe channels are locked out from *implied mute* or record states. If you attempt to arm a Record-Safe channel for recording, the REC/RDY switch LED will not light. Similarly, if you attempt to solo a Solo-Safe channel, the SOLO switch will not light, and the channel strip will remain audible in the mix. However, Solo Safe channels can be muted using the MUTE switches.

To enable Solo or Record Safe status on a channel strip:

Holding down the ⌘-ALT/FINE switch, press the channel strip's REC/RDY or SOLO switch.

There is no other indication on HUI that shows channels are in Record or Solo Safe mode. However, the Pro Tools software will display the associated Record or Solo switches as "grayed out."

Keyboard Shortcuts

- OPTION/ALL + ⌘-ALT/FINE + REC/RDY or SOLO switch on any channel = clears/enables Record or Solo Safe status on all channels
- Alternatively, OPTION/ALL + ⌘-ALT/FINE + REC/RDY ALL switch = clears/enables Record Safe status on all channels
- SHIFT/ADD + OPTION/ALL + ⌘-ALT/FINE + REC/RDY or SOLO switch on any channel = clears/enables Record or Solo Safe status on only selected channels

AUTO and SUSPEND Switches

AUTO Switch

The AUTO switch allows the channel strip's automation mode to be changed, when used in combination with the AUTO MODE section switches (located below the DSP EDIT/ASSIGN section). The AUTO MODE section switches are WRITE, TOUCH, LATCH, TRIM, READ, and OFF.

The channel strip's AUTO switch LED will illuminate in the following ways to indicate the various automation modes:

- Red (flashing) — Pro Tools is armed for automation in one of three modes: Write, Touch, or Latch.
- Red (lit continuously) — Pro Tools is writing automation in one of the three modes: Write, Touch, or Latch.
- Green (lit continuously) — Auto Read mode is enabled.
- Off — Automation playback is disabled.

When displayed in the channel LED scribble strip, the automation modes will be abbreviated as follows:

- "Wrt" – Auto Write
- "Tch" – Auto Touch
- "Ltch" – Auto Latch
- "Trim" – Auto Trim *(Auto Trim functionality will be supported in a future release of Pro Tools)*
- "Read" – Auto Read
- "Off" – Auto Off
- "–" indicates a MIDI track that cannot be automated

Changing Automation Modes

There are three ways to change automation modes on a channel strip: AUTO switch method, SELECT switch method and ALL switch method.

A. AUTO Switch Method

This method is quickest for changing the automation mode of individual channels within the same bank.

To change automation mode on a channel strip using the AUTO switch method:

1. Holding down the desired master AUTO MODE switch (WRITE, TOUCH, LATCH, TRIM, READ, or OFF) in the AUTO MODE section, press the AUTO switch on a channel strip.

2. As long as you hold down this switch combination, the channel strip's LED scribble strip will display the selected mode.

3. Release both switches. The scribble strip returns to showing previous content.

B. SELECT Switch Method

This method is quickest for changing the automation mode for a discontiguous selection of channel strips, or a group of channel strips that are on different banks.

To change automation mode on multiple channel strips using the SELECT switch method:

1. Select a channel strip or multiple channel strips by pressing their SELECT switches. Using the BANK switches, you can select channel strips in other banks.

2. Holding down both OPTION/ALL and SHIFT/ADD switches, press the desired AUTO MODE switch (WRITE, TOUCH, LATCH, TRIM, READ, or OFF) to change the automation mode of all selected channel strips to the selected mode.

C: ALL Switch Method

This method changes the automation mode of all channel strips.

3. Holding down the OPTION/ALL switch, press the desired AUTO MODE switch (WRITE, TOUCH, LATCH, TRIM, READ, or OFF) to change the automation mode of ALL channel strips to the selected mode.

When using the SELECT switch method to change a single channel strip's automation status, other channel strips belonging to the same active mix group(s) will automatically have their automation status changed as well. To suppress this grouped behavior while changing the automation status of a single channel strip, hold down the CTL/CLUTCH switch, or suspend groups using the SUSPEND switch in the STATUS/GROUP section, prior to making the change.

SUSPEND Switch

This switch globally suspends all automation recording and playback. When automation is suspended, the SUSPEND switch LED will flash. All channel strip levels and settings are left in their present state, but automation operations are temporarily suspended. This can be handy for experimenting freely with faders or other controls, without having to pay attention to current automation data.

Note: To use the SUSPEND switch, Pro Tools must be stopped (not playing back or recording).

INSERT Switch

The INSERT switch serves two functions:

- For single Plug-In editing only, pressing the INSERT switch accesses the corresponding channel strip's Plug-In inserts for editing in the DSP EDIT/ASSIGN VFD. In this mode, only one insert may be accessed at a time, and the insert shown in the DSP EDIT/ASSIGN VFD is always from the last selected channel strip.

- When the Master BYPASS switch (located in the SELECT/ASSIGN section directly to the left of the row of INSERT switches) is enabled (LED is lit), pressing any channel strip's INSERT switch allows you to bypass or enable all Plug-Ins on all inserts for that channel.

- When the Master BYPASS switch is enabled (LED is lit), holding down the OPTION/ALL switch and then pressing any channel strip's INSERT switch allows you to bypass Plug-In inserts for all of the channel strips.

Hardware I/O inserts (analog-to-digital and digital-to-analog Audio Interface pairs) cannot presently be bypassed. If you attempt to do this, a warning dialog will appear in Pro Tools.

An Important Note About Third-Party Plug-Ins

Third-party TDM Plug-Ins from some of Digidesign's Development Partners may need to be updated for compatibility with Pro Tools' new dynamic automation capabilities, as well as with the HUI's Plug-In editing and librarian functionality. When you attempt to edit a Plug-In that is not supported by HUI, the message "Your version of the Plug-In cannot be edited from the HUI" will appear in the DSP EDIT/ASSIGN VFD. Contact the manufacturer of your Plug-Ins for information about automation support.

Selecting Inserts and Plug-In Pages

There are three basic methods for selecting Plug-In or hardware I/O inserts for editing: using the INSERT switch with the DSP EDIT/ASSIGN VFD, using the INSERT switch with the SEND A-E switches, and by double-clicking the INSERT switch.

A. Selecting an Insert Using the DSP EDIT/ASSIGN Section

In this method, the INSERT switch is used to begin the process of selecting a Plug-In for editing, but the actual selection of which Plug-In to edit is made in the DSP EDIT/ASSIGN section of HUI.

To select an insert using the DSP EDIT/ASSIGN VFD section menu:

1. Press a channel strip's INSERT switch. Its LED lights.

2. The names of the first four inserts for that channel strip appear in the DSP EDIT/ASSIGN VFD area. If you wish to access Insert #5, turn the SCROLL pot to go to the next page of inserts.

3. The name of the last insert accessed during the current session will flash in the VFD. If no insert was previously accessed in the session, Insert #1 will flash.

4. To select a particular insert for editing, press the SELECT switch directly under the desired insert listed in the VFD. If the selected insert has not been assigned to a Plug-In or hardware I/O (A/D/A) pair, the VFD will indicate "No Insert." Plug-Ins which are engaged are shown in lowercase letters; Plug-Ins which are bypassed are shown in uppercase letters.

5. If the desired insert is the currently flashing item in the VFD, double-click the channel strip's INSERT switch, or press the DSP EDIT/ASSIGN section's INSERT/PARAM switch, to confirm the choice. To select an insert other than the currently flashing item, press the SELECT switch under the desired insert listed in the VFD.

6. If you have selected an insert assigned to a Plug-In, its first page of parameters will be displayed in the VFD for editing. The INSERT/PARAM switch LED is on, indicating the VFD is in Parameter mode. Pressing the INSERT/PARAM switch will toggle back to the Insert Display mode.

7. If you wish to edit additional pages of parameters in Parameter mode, turn the SCROLL encoder pot to go to the next page.

8. The selected Plug-In will remain displayed in the VFD until another insert is selected. If you wish to reassign the insert to a different Plug-In or hardware I/O, please refer to "Assigning Plug-Ins and Audio Interface I/O Pairs" later in this chapter.

B. Selecting a Send Using the SEND A-E Switches

This method allows you to quickly access a send using the INSERT switch in tandem with the SENDS A-E switches in the SELECT/ASSIGN section.

To select a send using the SEND A-E switches:

1. Press a channel strip's INSERT switch. Its LED lights.

2. Press one of the SEND A-E switches in the SELECT/ ASSIGN. The SENDS A-E switches correspond to Pro Tools' Sends 1-5.

3. Send level and pre/post fader routing are now accessible for the chosen send. Relative send levels are shown by the LED collars around each channel's V-POT .

4. If you wish to reassign the send to a different audio interface output or bus, please refer to "Sends and I/O Assignment" section later in this chapter.

C. Selecting an Insert by Double-Clicking the INSERT Switch

Double-clicking an INSERT switch directly accesses the first assigned insert for editing. If the insert is assigned to a Plug-In, the first control parameter page of the Plug-In will be displayed in the VFD.

To select an insert by double-clicking the INSERT switch:

1. Double-click a channel strip's INSERT switch. The channel strip's first assigned insert is accessed for editing.

2. If the insert is assigned to a Plug-In, the first control parameter page of the Plug-In is then displayed in the VFD. Plug-Ins inserts which are engaged will appear in lowercase letters; Plug-Ins inserts which are bypassed will appear in uppercase letters.

3. Alternatively, double-click a channel strip's INSERT switch multiple times to sequentially cycle through the channel strip's inserts (1-5). However, if an insert is unassigned, it will be skipped; if there are no additional active inserts, double-clicking the INSERT switch will have no effect. For example, if there are Plug-Ins assigned to Inserts #1 and #3, but none on Inserts #2, #4 or #5, double-clicking the INSERT switch will cycle between the Plug-In parameter pages for only Inserts #1 and #3.

4. If you wish to assign a different Plug-In or Audio Interface I/O (A/D/A) pair on the insert, refer to "Assigning DSP Plug-In and Audio Interface I/O Pairs" later in this chapter.

INSERT Switch "Edit Focus" Follows Originating Channel Strip

As channel strips are bank swapped using the Bank and Channel switches, the "edit focus" for the INSERT switches follows its originating channel strip, even though it may be "off-bank." For example, if your current session uses more than eight channel strips, your initial bank view will display only channel strips #1-8. If you select the INSERT switch on channel strip #3 (LED is lit) and then bank swap channel strip #3 out of the current bank view, the INSERT switch LED on channel strip #3 will turn off. However, the "edit focus" will follow the insert on channel strip #3, which remains on display in the VFD for editing. If channel strip #3 is banked back into view, its INSERT switch will light once more.

Master BYPASS Switch

Pressing the Master BYPASS switch in the SELECT/ASSIGN section globally changes the INSERT switches into BYPASS switches for all Plug-Ins on the channel strip, allowing you to bypass all Plug-In inserts for the selected channel strip in a single operation.

Hardware I/O inserts (Audio Interface I/O pairs) cannot be bypassed. If you attempt to do this, a warning will appear in Pro Tools.

To bypass all Plug-In inserts on a channel strip:

1. Press the master BYPASS switch in the SELECT/ASSIGN section *(NOT the DSP EDIT/ASSIGN section)*. Its LED lights to indicate master bypass mode is enabled.

2. In Master Bypass mode, the INSERT switches for each channel strip in the current bank displays one of three bypass states:

   - INSERT switch LED is unlit – None of the Plug-In inserts on the channel strip are currently bypassed.
   - INSERT switch LED is lit – All of the Plug-In inserts on the channel strip are bypassed, as a result of pressing the INSERT switch.
   - INSERT switch LED flashes – The channel strip is in a "mixed bypass state," meaning that only some of the Plug-In inserts on the channel strip are bypassed.

3. Press any INSERT switch to toggle the bypass status on/off for all Plug-In inserts on the corresponding channel strip.

4. When the channel strip is in a mixed bypass state, pressing the INSERT switch for the first time will disable bypass mode on all Plug-In inserts for the channel strip; pressing the INSERT switch a second time will enable bypass for all Plug-Ins.

5. Holding down the OPTION/ALL switch, press any INSERT switch to change the bypass status of all Plug-In inserts on all channel strips. (If Plug-Ins on multiple channels are in "mixed states," bypass status will follow the rules listed above.)

6. Holding down the OPTION/ALL and SHIFT/ADD switches, press any INSERT switch to change the bypassed status of all Plug-Ins on selected channels.

Bypassing of individual Plug-In inserts on a channel strip can be accomplished using the BYPASS and SELECT switches in the DSP EDIT/ASSIGN section. The Master BYPASS switch in the SELECT/ASSIGN section operates on the INSERT switches on each channel strip, and functions differently from the BYPASS switch in the DSP EDIT/ASSIGN section. The BYPASS switch in the DSP EDIT/ASSIGN section is discussed later in this chapter.

V-SEL Switch

The V-SEL ("V-POT SELECT") switch serves several functions:

- Assigns Send or I/O routing for an individual channel strip.
- Acts as a "Send Mute" switch when the Master MUTE switch in the SELECT/ASSIGN section is engaged (LED is lit).
- Selects fader or V-POT to revert to default setting, when used in tandem with the DEFAULT (QuickMode) switch.

Assigning the function for this switch is accomplished using the V-POT encoder.

PAN/SEND V-POT Encoder

When used in tandem with the switches in the SELECT/ ASSIGN section, the PAN/SEND V-POT is used for editing of send levels and pan settings.

It is also used to assign Send and I/O routing for individual channel strips. (See the "Send and Pan Editing" section in the discussion on the SELECT/ASSIGN switch area later in this chapter.)

The V-POT acts as a free-spinning "virtual" knob, and the LED ring illuminates to represent a relative "knob value" for send levels and pan settings. When displaying send levels, the collar LEDs around the V-POTs will display a continuous "wrap around level."

When displaying pan position, an individual LED from the collar LEDs will light to indicate relative pan position, while a special "6 o'clock" LED lights to indicate a centered pan position.

The V-POT LED collar will be blank when its assigned control is not functional (for example, right pan control on a mono channel strip).

The last LED on the *left* of the collar will be lit when an assigned control is set to full *off*. The last LED on the *right* of the collar will be lit when an assigned control is set to full *on*.

Rotating the V-POTs will audibly click when assigning Send and I/O destinations, as well as when editing insert assignments and Plug-In parameters in the DSP EDIT/ ASSIGN section.

This audible click functionality can be enabled/disabled by pressing the F3 switch in the F-key switch section, which will display "Rotary knobs will now click" or "Rotary knobs will no longer click" in the VFD.

SELECT/ASSIGN Switch Section: Selecting the Function for the V-POT Row

The SELECT/ASSIGN switch section allows you to globally choose the V-POT encoder's current function for all active channel strips (using the SELECT switch), or to change Send or I/O destinations (using the ASSIGN switch). In addition, I/O destinations for individual channel strips can be queried and displayed in the SELECT/ASSIGN LED. Only one of the SELECT/ASSIGN switches can be active at a time, and one is always active.

The SELECT/ASSIGN switch section

Channel Scribble Strip LED Display

The four-character, scribble-strip LED display shows an abridged version of the channel strip name that appears in Pro Tools. In certain cases during edit operations, the scribble strip will temporarily display a parameter name or value, and then revert to the channel strip name. If a channel is unused or a function does not apply, the channel scribble strip display will remain blank.

Other related uses for the channel scribble strip include:

- Automation Status — Temporarily displays current automation mode for the channel (while pressing and holding down the channel strip's AUTO switch, or the master AUTO status switch in the STATUS/GROUP switch matrix).

- Group Membership Status — Temporarily displays the Group ID for the channel ("topmost" group), if any (while pressing and holding down the GROUP switch in the STATUS/GROUP switch matrix).

- Global Disk Track Monitor Status *(for TDM systems only)* — Temporarily displays whether Pro Tools is in "Auto Input" or "Input Only" mode on all channel scribble strips (while pressing and holding down the MONITOR switch in the STATUS/GROUP switch matrix).

- Channel Strip Input Source — Temporarily displays current input source for all channel strips (while pressing and holding down the master INPUT switch in the SELECT/ASSIGN section).

- Channel Strip Output Destination — Temporarily displays current output source status for all channel strips (while pressing and holding down the OUTPUT switch in the SELECT/ASSIGN section).

- Send Destination — Temporarily displays send destination status for any send, for all channel strips (while pressing and holding down any master SEND switch (A-E) in the SELECT/ASSIGN section).

- Pre/Post Send Display — Temporarily displays the pre/post status of an individual send when changing it via the channel's V-SEL switch.

- Level display in dB on the channel's scribble strip (by pressing ⌘-ALT/FINE and moving a fader).

- Numeric PAN position (*-100* to *+100*) shown on a channel's scribble strip (by pressing ⌘-ALT/FINE and moving the channel's V-POT while in pan display mode).

Send and Pan Editing

There are five SEND switches (labeled A-E) and a PAN switch. The "A-E" labels can apply to either the five sends or the five inserts, depending on function.

To edit send levels:

1. Press one of the five SEND switches. The switch's LED will light, and the SELECT/ASSIGN LED display will show the name of the activated switch (e.g. "SndA," "SndB," and so on).

2. Adjust the V-POT on an individual channel strip to edit levels for the selected send. The V-POT will indicate levels using its wraparound LED collar.

3. To temporarily show the destination associated with a particular send on all channel strips, press and hold down any master SEND switch (A-E) in the SELECT/ASSIGN section. The destinations for that send appear in each channel's scribble strip LED above each fader. (If there is no send routing for a channel, "-" is displayed.)

To edit pan positions on channel strips:

1. Press the PAN switch to switch between left- and right-channel pan controls (for stereo channel strips).

2. When the PAN switch is first enabled, the stereo channel strip's V-POT will allow editing of the left-channel pan (on stereo channel strips), or the single pan control (on mono channel strips). The SELECT/ASSIGN LED will display "Pan." The V-POT's LED collar will indicate pan positions using a single lit LED.

3. Press the PAN switch a second time to edit the right-channel pan (on stereo channel strips). The SELECT/ASSIGN LED will display "PanR," and the PAN switch LED will flash. The V-POT's LED collar will indicate pan position using a single lit LED. Only stereo channel strips will indicate right pan position; on mono channel strips, the V-POT LED collars will be unlit and the V-POT will be inactive.

The 6 o'clock LED in the collar of the V-POT encoder will light when the pan setting is perfectly centered. In addition, if there is no pan associated with a channel (such as a master fader track, for example), none of the collar LEDs on the channel strip's V-POT will light.

Send and I/O Assignment

The routing of Sends and I/Os can be assigned from HUI, using a combination of the SEND A-E, INPUT/OUTPUT, and ASSIGN switches in the SELECT/ASSIGN section. Destinations can be assigned on a single channel or a group of channels at once.

Assignments cannot be made when Pro Tools is playing back or recording. Pro Tools Transport must be stopped. If you are in ASSIGN mode and have not completed the assign process, and then start playback or recording in Pro Tools, the ASSIGN process will be automatically cancelled.

To assign Sends or I/Os on a single channel strip:

1. Press the ASSIGN switch in the SELECT/ASSIGN section. Its LED flashes, and the SELECT/ASSIGN LED display shows "ASGN." Assign mode is now active.

2. Press the desired SEND switch (A-E) or INPUT/OUTPUT switch. (If you make a mistake, you can freely choose another master assignment parameter. HUI will not "lock on" to the current choice until you have rotated a channel's V-POT, which *commits* the chosen master control.)

3. Rotate a channel strip's V-POT to cycle through a list of source (or destination) choices, which appear as abridged names in the channel strip's scribble strip LED display. Cycling through the list of choices, the collar LEDs on the V-POT will also display individual LED increments, starting at far-left and reaching around to the right. As the V-POT is turned, each discrete choice will audibly click (unless this function is disabled). The V-SEL switch LED flashes to indicate that the original assignment, if any, has been changed.

4. When the desired menu choice is reached, you can "commit" (finalize) the assignment in one of two ways:

- Press the master ASSIGN switch to commit all of your assignments at once. The master ASSIGN switch and V-POT switch LEDs turn off, and the assignment process is complete. This method is best if you are assigning on only a single channel strip (or several channel strips), and you want to confirm all your new assignments at once while exiting ASSIGN mode. Until you have pressed the master ASSIGN switch, you have not "committed" the assignment; you can cancel at any time by pressing the F8/Escape switch.

OR

- Press the channel strip's V-SEL switch to "commit" the selection. The V-SEL switch LED turns off, and the master ASSIGN switch continues to flash. This confirms the assignment for a given channel strip, but leaves you in ASSIGN mode, allowing you to continue to make assignments on other channels.

5. Alternatively, press the F8/ESC switch to exit assign mode and leave all "uncommitted" channels unchanged.

To assign the destinations of Sends or I/Os on all channels:

1. Press the ASSIGN switch in the SELECT/ASSIGN section. Its LED flashes, and the SELECT/ASSIGN LED display shows "ASGN." Assign mode is now active.

2. Follow the steps #1-3 (to assign a single channel) as outlined above.

3. Holding down the OPTION/ALL switch, press the ASSIGN or V-SEL switch to confirm the menu choice for *all* channels.

4. Alternatively, press the F8/ESC switch to exit assign mode and leave all channels unchanged.

To assign the destinations of Sends or I/Os on a selection of channels:

1. Press the ASSIGN switch in the SELECT/ASSIGN section. Its LED flashes, and the SELECT/ASSIGN LED display shows "ASGN." Assign mode is now armed.

2. Follow the steps #1-3 (to assign a single channel) as outlined above.

3. Holding down the OPTION/ALL and SHIFT/ADD switches, press the ASSIGN or V-SEL switch to confirm the menu choice for all *selected* channels.

4. Alternatively, press the F8/ESC switch to exit assign mode and leave selected channels unchanged.

If a new Send or I/O choice has been made and the target channel strip's V-SEL switch is flashing, you may not swap banks or scroll channels. If you attempt to do this, HUI will display "Cannot bank while in assign mode" in the VFD. Once the new assignment has been confirmed or cancelled, you may swap banks or scroll channels.

On TDM systems, Pro Tools will take a few moments to create TDM connections on several channels at once. Until this process is complete, you will not see the new assignment routing reflected on the Pro Tools screen or on HUI. Also, remember that Pro Tools will not currently allow playback (or record) to begin while TDM connections are being made.

Pre/Post-Fader Switching for Sends

Normally, the V-POT V-SEL switch row will act as a pre/post routing switch for the currently active send. Newly created sends default to post-fader routing (LED is unlit). As pre/post status is toggled, the channel's scribble strip will indicate "PRE" or "POST" (as long as the V-SEL switch is held down). When a send has been changed to a pre-fader state, the V-POT V-SEL switch will illuminate. Pre/post switching is not available when HUI is in assign mode, or if the master MUTE switch is operating on the V-SEL switches (see below), or while Pro Tools is playing or recording.

Keyboard Shortcuts

- Newly-created sends default to post-fader routing (V-SEL switch LED is turned off).
- Press the V-SEL switch to toggle the send to pre-fader routing for the channel strip.
- Holding down the OPTION/ALL switch, press the V-SEL switch to toggle the send routing (pre- or post-fader) for the channel strip for *all* channel strips.
- Holding down the OPTION/ALL and SHIFT/ADD switches, press the V-SEL switch to toggle the send routing (pre- or post-fader) for *selected* channel strips.

Send Muting Using the Master MUTE Switch

When the master Mute switch is lit, the V-SEL switch row will act as mute switches for the currently active send. In this mode, if a send is muted, its channel V-SEL switch LED will light. If the send is not muted, or if there is no active send (i.e. no destination), the LED will remain unlit.

Keyboard shortcuts for ALL and ALL SELECTED channels using the shortcut modifier keys do not presently work on send mutes.

DEFAULT (QuickMode) switch

This switch is used to return a channel strip's faders and V-POTS to their default settings. The default settings for fader position is "0" (or unity) gain; for pan, the default is centered.

To return a channel strip's fader to its default setting:

1. Press and hold down the DEFAULT switch. As long as the DEFAULT switch is held down, its LED will light and the SELECT/ASSIGN LED will display "DFLT."

2. Continuing to hold down the DEFAULT switch, press any channel strip's SELECT switch.

3. Alternatively, holding down the OPTION/ALL switch followed by the DEFAULT switch, press any channel strip's SELECT switch to return all channel strips' faders to their default setting.

4. Alternatively, holding down the OPTION/ALL and SHIFT/ADD switches followed by the DEFAULT switch, press any selected channel strip's SELECT switch to return all selected channel strips' faders to their default setting.

To return a channel strip's send level or pan to its default setting:

1. Press the appropriate SEND (A-E) or PAN switch in the SELECT/ASSIGN section. Its corresponding switch LED will light, and SELECT/ASSIGN LED will display the selected send or pan.

2. Press and hold down the DEFAULT switch. As long as the DEFAULT switch is held down, its LED will light and the SELECT/ASSIGN LED will display "DFLT."

3. Continuing to hold down the DEFAULT switch, press any channel strip's V-SEL switch. The selected send level or pan is returned to its default setting.

4. Alternatively, holding down the OPTION/ALL switch followed by the DEFAULT switch, press any channel strip's V-SEL switch to return all channel strips' send levels or pans to their default setting.

5. Alternatively, holding down the OPTION/ALL and SHIFT/ADD switches followed by the DEFAULT switch, press any selected channel strip's V-SEL switch to return all selected channel strip's send levels or pans to their default setting.

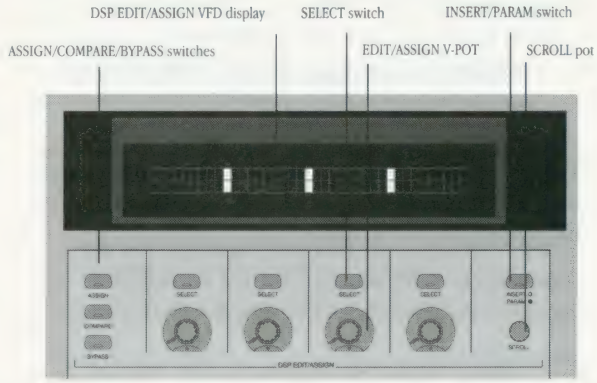
To return a Plug-In to it default setting:

1. Press and hold down the DEFAULT switch. As long as the DEFAULT switch is held down, its LED will light and the SELECT/ASSIGN LED will display "DFLT."

2. Continuing to hold down the DEFAULT switch, press the COMPARE switch in the DSP EDIT/ASSIGN area.

3. The Plug-in will return to either the Factory Setting or the User Setting default, depending upon which is currently checked in the "Settings Preference" in Pro Tools' Plug-In Librarian pop-up menu.

DSP EDIT/ASSIGN Section



The DSP Edit/Assign Section

This section is dedicated to the assignment of Plug-ins and audio interface A/D/A pairs (hardware I/O inserts), and editing of software DSP Plug-Ins.

DSP EDIT/ASSIGN VFD

The DSP EDIT/ASSIGN VFD is a two-line by 40-character vacuum fluorescent display (VFD). This display is used primarily to show information about individual channel strip inserts, Plug-In parameters (for Plug-In editing), and for messages about Pro Tools/HUI status.

When first starting up the HUI, the VFD will display the software version number of the installed firmware. This information allows you to determine whether the installed firmware is current.

When both the HUI and Pro Tools are running and there is no session currently opened, the VFD will indicate "No Pro Tools session is currently open."

When a channel strip is selected via its INSERT switch in the fader section of HUI, the VFD displays either:

- The names of the current inserts (INSERT Display mode)

OR

- Plug-In parameter pages for editing a Plug-In on that channel (PARAM display mode).

The VFD also displays special modal dialog messages. (See the "Troubleshooting and Diagnostics" section at the end of this chapter for more details.)

SELECT switches and V-POT encoders

Under the VFD display are four sets of SELECT switches and V-POT encoders. The SELECT switch and V-POT encoder have different functions depending on whether the display is currently in INSERT display mode or PARAM display mode:

- In INSERT mode, the SELECT switch is used to select an insert (a-e) for editing or assignment. The V-POT encoder is used in ASSIGN mode to choose among a list of Plug-Ins or audio interface I/O pairs for assignment.

- In PARAM mode, these controls are used for Plug-In editing. The four switches and four encoders physically represent any "soft" controls that may appear in a DSP Plug-In's software interface. Controls are mapped to *pages* (or logical groups) of controls. Generally, the switches control individual two-state parameters (such as parameters that switch on/off or in/out, for example, EQ band in/out controls or phase invert controls). Encoders are used to control continuously variable parameters (such as gain), or parameters that contain several discrete choices (such as choosing different reverb algorithms in a reverb Plug-In).

Six O'clock LED Indicates Automation Mode

If a Plug-In parameter is enabled for automation (Touch, Latch, or Write), the 6 o'clock position LED (located in the bottom center of the V-POT's LED collar) will flash. If automation data for the Plug-In control is being recorded, the 6 o'clock LED will light.

Touch Time-Out for V-POT Editing

Touch time-out refers to the time when automation recording (in Auto Touch mode) will automatically punch out, because it is assumed that the control is no longer being touched. Since V-POTs are not touch-sensitive, punching out of automation recording of V-POT editing is determined by the "touch time out" setting in Pro Tools' Automation preferences. In addition, punching out of automation can be accomplished by stopping the transport.

User Tip:

Since the DSP EDIT/ASSIGN V-POTs are not touch sensitive controls, it may be more useful in many cases to use Auto Latch mode to record Plug-In parameter automation changes. This allows you to punch-in (by moving a control) at any point during an automation "pass," while not having to worry about the control "punching out" because you are not actively moving it.

SCROLL Encoder Pot and INSERT/PARAM Switch

Pressing the INSERT/PARAM switch toggles the VFD between Insert Display mode (LED is off) which displays the Plug-In selection on an insert, and Parameter mode (LED is lit) which displays the Plug-In parameter pages for editing (on TDM systems only).

The SCROLL pot is used in conjunction with the INSERT/PARAM switch. In INSERT display mode, turning the SCROLL pot toggles the VFD between Inserts #'s 1-4 and Insert #5 only. In PARAM display mode, rotating the SCROLL pot forward and backward will cycle through the control parameter pages for the currently active Plug-In. When scrolling through Plug-In parameter pages, the VFD will temporarily indicate which page is currently being viewed, and how many pages there are for the Plug-In.

Assigning Plug-Ins and Audio Interface I/O Pairs

ASSIGN Switch

HUI allows for assignment of Plug-Ins or audio interface A/D/A pairs as "hardware I/O inserts" (on TDM systems only).

Assignments cannot be made when Pro Tools is playing back or recording. Pro Tools' Transport must be stopped. As a result, HUI's ASSIGN modes are not available while Pro Tools is playing audio. If you are in ASSIGN mode and have not completed the assign process, and then start playback or recording in Pro Tools, the ASSIGN process will be automatically cancelled.

To assign a Plug-In or audio interface I/O pair on a single channel strip:

1. Press the INSERT switch on the channel strip where you wish to assign a Plug-In or hardware insert. The INSERT switch LED will light, and the associated track in Pro Tools will be outlined in red in the Mix window.

2. Press the ASSIGN switch in the DSP EDIT/ASSIGN *(NOT in the SELECT/ASSIGN section)*. Assign mode is now armed, and the ASSIGN switch LED will flash.

If assign mode is already armed and you target another channel strip by pressing its INSERT switch, assign mode will be automatically exited. After making certain selection of your target channel strip, be sure to press the ASSIGN switch again (LED is lit) to rearm assign mode.

3. Directly under the insert in the VFD that you wish to assign, rotate the V-POT encoder to cycle through a selection menu of Plug-Ins and hardware I/O pairs. These menu choices are displayed in the VFD. Note that the first item in the menu is "No Insert." As the V-POT is moved, an audible click will be heard as you rotate through the menu choices (unless this preference is disabled).

4. When rotating the V-POT encoder, its accompanying SELECT switch will flash, indicating the insert is being assigned or edited. (The switch will *not* flash if the assignment is unchanged.)

5. Stop rotating the V-POT encoder when you have selected the desired Plug-In or hardware I/O. Only one insert can be assigned at a time.

6. When the desired menu choice is reached, you can "commit" (confirm) the assignment in one of two ways:

- Press the ASSIGN switch to commit all of your assignments at once. The master ASSIGN switch and SELECT LEDs turn off, and the assignment process is complete. This method is best if you are assigning only a single insert (or several inserts), and you want to commit all your new assignments at once. Until you have pressed the ASSIGN switch, you have not "committed" (or confirmed) the assignment; you can also cancel at any time by pressing the F8/Escape switch.
- Press the SELECT switch beneath the insert of interest in the VFD to confirm your choice. The SELECT switch LED turns off, and the master ASSIGN switch continues to flash. This "commits" the assignment for that insert, but leaves you in ASSIGN mode, allowing you to continue to make assignments on other inserts on that channel.

7. To cancel all unconfirmed assignments and edits, press the F8/ESC switch. Channels whose changes have already been confirmed will remain changed.

8. Press the SELECT switch directly under any newly assigned Plug-In, and its first control parameter page will appear in the VFD for editing. You can switch between viewing insert selections and parameter pages by pressing the INSERT/PARAM switch.

To assign a Plug-In or hardware I/O on all channel strips:

1. Follow steps #1-5 as described above.

2. Holding down the OPTION/ALL switch, press the DSP EDIT/ASSIGN area's ASSIGN (or the SELECT switch beneath the VFD insert choice that you are editing). The VFD will display the message "Assigning to ALL channel strips." The new assignment will be created on all channels (up to the limits of DSP availability).

To assign a Plug-In or hardware I/O on a selection of channel strips:

1. Create a selection of faders by holding down the SHIFT/ADD switch and pressing SELECT switches on multiple channel strips.

2. Press the ASSIGN switch in the DSP EDIT/ASSIGN section. The ASSIGN switch LED will flash.

3. Follow steps #1-5 as described above.

4. Holding down the OPTION/ALL and SHIFT/ADD switches, press the ASSIGN switch again in the DSP EDIT/ASSIGN section. The VFD will display the message "Assigning to SELECTED channel strips." The new assignment will be created on the selected channels (up to the limits of DSP availability).

Editing Plug-In Parameters

(for TDM systems only)

When a Plug-In insert is selected for editing, its first page of control parameters is automatically displayed in the VFD. Individual parameters can then be edited using the switches and V-POTs in the DSP EDIT/ASSIGN section.

To edit an assigned Plug-In on a channel strip:

1. Select a Plug-In insert using one of the three methods described in the "Selecting Inserts and Plug-In Pages section" in the beginning of this chapter. The first page of control parameter pages for the selected Plug-In is automatically displayed in the VFD for editing. The INSERT/PARAM switch LED is lit, indicating the VFD is in Parameter mode.

2. Alternatively, if you just finished assigning a Plug-In on an insert, press the INSERT/PARAM switch LED to enable Parameter mode (LED is lit), if necessary.

3. Rotate the SCROLL encoder pot forward and backward to review the Plug-In's parameter pages, until you find the parameter you wish to edit. If no additional pages are available when scrolling, the last available page will remain in view.

4. If the desired parameter is a switched, two-step parameter (such as Phase Inversion), press the SELECT switch directly underneath the parameter in the VFD to toggle its state.

5. If the desired parameter is continuously variable, or has stepped values, rotate the V-POT encoder directly underneath the parameter in the VFD to adjust its setting. The LED collar around the V-POT will indicate parameter settings or levels. Numeric parameter values will also be displayed in the VFD with four digits of precision. If a parameter amount exceeds four digits, the end of the parameter value string will be truncated. For example, "10582 Hz" would be displayed "1058."

6. Editing Plug-In parameters is made easier with a *velocity sensitivity* algorithm. Turning the V-POTs slowly will create very small changes, allowing easy access to even the smallest parameter changes. (For example, 0.1dB accuracy when adjusting some level controls). Conversely, a quick turn will create large value changes, allowing more coarse adjustments (for example, when going from -12dB on an EQ's gain control to 0dB in one half-turn).

COMPARE Switch

This switch allows you to compare edited Plug-In parameter settings to the original settings, and mirrors the Compare switch in Pro Tools' Plug-In interface window.

The COMPARE switch will not function if HUI is editing a Plug-In whose interface window is hidden on-screen. The COMPARE switch will function as soon as the Plug-In window is made visible again. Be sure to use the ALT window switch to open the current active Plug-In window.

BYPASS switch

The BYPASS switch in the DSP EDIT/ASSIGN section serves two functions:

- In Insert Display mode, as a bypass switch for any Plug-In insert
- In Parameter Mode, as a "Master Bypass" for the currently selected Plug-In

This BYPASS switch is different from the Master BYPASS switch in the SELECT/ASSIGN section, which globally bypasses the entire channel strip's inserts.

Bypass of Individual Inserts in Insert Display Mode

If Insert Display mode is enabled, holding down the BYPASS switch (in the DSP EDIT/ASSIGN section), and pressing the SELECT switch directly under the Plug-In insert shown in the VFD, will bypass that Plug-In. This will be indicated by the Plug-In name in the VFD switching from lowercase letters (engaged) to uppercase letters (bypassed). Note that when switching bypass status for individual Plug-Ins in this manner, the BYPASS switch LED will not light.

Hardware I/O inserts may not currently be bypassed in Pro Tools. If you attempt to do this on HUI, a warning dialog will appear on the Pro Tools screen.

Bypass of Selected Plug-Ins in Parameter Mode

If a Plug-In is selected for editing and Parameter mode is enabled, pressing the BYPASS switch (in the DSP EDIT/ASSIGN section) engages the Master Bypass control for the selected Plug-In. In this case, the BYPASS switch LED will light. When switching Plug-ins, the BYPASS switch LED will indicate the bypass state of the currently selecteet-lug-In.

Automating Plug-Ins

Selection of parameters for automation must be made within the Pro Tools software, using the Macintosh keyboard and/or mouse.

About Third-Party Plug-In Products and Automation

There are a wide variety of Plug-Ins available for your Pro Tools TDM system from other Digidesign Development Partners. Please be aware that Plug-In developers are individually responsible for updating their Plug-In to provide automation functions. If your Third-Party Plug-In does not have these capabilities, please contact the developer for information about automation support.

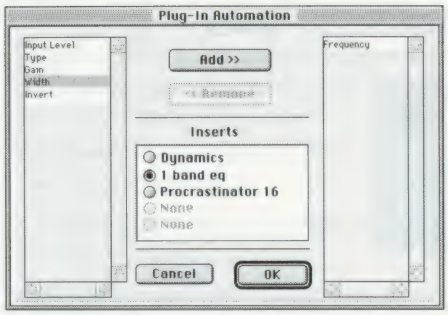
To record automation data for a Plug-In:

1. Press the PLUG-IN switch in the AUTO ENABLE switch section (in the Switch Matrix directly below the DSP EDIT/ASSIGN section). The PLUG-IN switch LED will light, indicating that automation for Plug-Ins is armed.

2. HUI does not support arming of Plug-In controls. You must arm controls directly in Pro Tools using your mouse. Arm the controls that you wish to automate within the Plug-In's on-screen automation dialog by clicking the *Automation* switch in the Plug-In's Inserts/Sends Editor

Clicking the "automation" switch in the Plug-In's Inserts/Sends Editor

3. When the *Plug-In Automation* dialog appears, choose the parameters that you wish to automate and click the *Add* switch. If there are multiple inserts on the track, you can select from among these with the *Inserts* section of this dialog. *Only the parameters that you choose here will be automatable.* Click *OK* to close this dialog.



The Plug-In Automation dialog

4. Press the AUTO switch on the channel strip corresponding to the Plug-In insert that you wish to automate, and then select the desired automation mode in the AUTO MODE switch section. For an initial automation pass, you may wish to choose AUTO WRITE. Once a parameter is armed for automation, the 6 o'clock position LED on the corresponding V-POT will flash if the channel is placed into any auto write mode (Write, Touch or Latch).

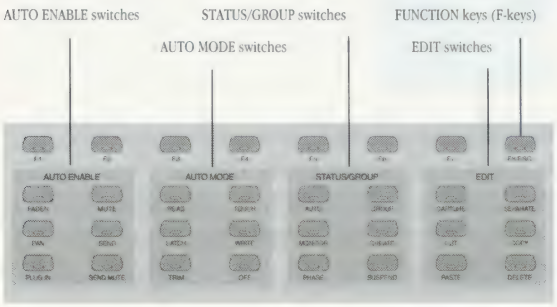
5. Click *Play* or press the Space bar, and automation recording begins. Move the V-POTs and SELECT switches corresponding to the Plug-In parameters that you have enabled for automation.

6. When you have finished, click *Stop* or press the Space bar again. In Auto Touch mode, automation recording will automatically punch out when the "touch time-out" period has elapsed, as defined in Pro Tools' Automation Preferences.

7. Click the RETURN TO ZERO switch and then the PLAY switch on the transport to listen to your recorded automation pass.

8. To add additional automation or augment your previous pass, follow the above procedure, choosing AUTO TOUCH mode. This will allow you to add new automation only when you actually move a control. It will not erase previous automation data unless you move the control at that point in the session.

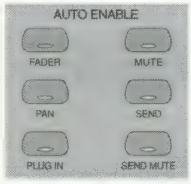
Switch Matrix: Automation, Grouping, and Edit Control



The Switch Matrix contains switches for global Automation Enabling, Automation Mode, group creation, querying status, and editing. The top row of F-keys (Function keys) are assigned to specific functions.

AUTO ENABLE and AUTO MODE Switches

AUTO ENABLE Switches

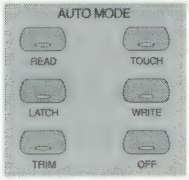


These switches globally enable automation for FADER, MUTE, PAN, SEND, SEND MUTE and PLUG-IN. These correspond to the same Automation Enable functions in Pro Tools.

Keyboard Shortcuts

- Hold down the OPTION/ALL switch and press any of the AUTO ENABLE switches to toggle all parameters to the state of the switch that is touched.
- Hold down the ⌘-ALT/FINE and press any enabled switch to change the state of the switch that is pressed and set the other five to the *opposite* state.

AUTO MODE Switches



These switches are used for arming automation on individual or groups of channels. The switch modes are READ, TOUCH, LATCH, WRITE, and OFF. *(TRIM switch functionality will be made available in a future release of the Pro Tools software.)*

To arm automation:

1. Holding down the AUTO switch on the channel strip that you want to automate, press the desired AUTO MODE switch. The selected channel will enter the desired automation mode.

2. The channel strip's AUTO switch LED will light continuously for READ mode, and flash for WRITE, TOUCH or LATCH mode. The automation mode will also be briefly displayed on the selected channel strips.

To arm all channels for automation:

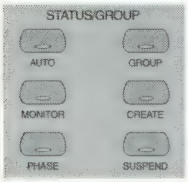
Hold down the OPTION/ALL switch and press the desired AUTO MODE switch.

To arm all selected channels for automation:

Hold down both OPTION/ALL and SHIFT/ADD switches and press the desired AUTO MODE switch.

Remember that all grouped channel strips will change their automation mode status together, unless you hold the CONTROL modifier switch when making the AUTO status change, or unless you have suspended groups.

STATUS/GROUP Switches



These switches are used to query and change group status, minimal grouping functions, using the channel scribble strips for user feedback.

AUTO and GROUP Switches

The AUTO and GROUP switches allow you to query the current automation or grouping status of an entire bank of channels, by displaying individual channel status on the LED scribble strips.

To view the automation status of the current channel bank:

Press and hold down the AUTO switch. The channel LED scribble strips will display the automation status for each channel (Read, Tch, Ltch, Wrt, or Off), as long as the switch is held down.

To view the Group status of the current channel bank:

Press and hold down the GROUP switch. The channel LED scribble strips will display the Group ID letter. (Lowercase letter indicates the channel is a member of one group; uppercase letter indicates the channel is a member of multiple groups, with the "topmost" group ID displayed.*)

PHASE Switch

Functionality for the PHASE switch will be made available in a future release of the Pro Tools software.

MONITOR Switch

(for TDM systems only)

The MONITOR switch allows you to query the monitor assignment on the channel scribble strips.

To view the Monitor status of the current bank:

Press and hold down the MONITOR switch. As long as the MONITOR switched is held down, the current monitor status of channels will be displayed:

- "Auto" – for Auto Input mode
- "Inpt" – for Input Only mode
- "Aux" – if a track is an auxiliary input
- "MIDI" – if it is a MIDI track
- "Mstr" – if it is a master fader

The ability to view the Monitor status is available for TDM systems only. On Pro Tools Project and PowerMix systems, on which global monitor switching is not available, pressing the MONITOR switch will do nothing. Instead, disk tracks will display a blank space on the scribble strip for any disk track.

Group Functions

In addition to viewing their channel status, you may create, suspend, and re-enable groups from the switch matrix.

To create Groups using the CREATE switch:

1. Make a selection of two or more channels by holding down the SHIFT/ADD switch and pressing the SELECT switches on channel strips

2. In the STATUS/GROUP switch matrix, press the CREATE switch. (This corresponds to ⌘-G in Pro Tools). The Pro Tools Group dialog appears on-screen.

3. The next available "free" group is indicated with a default name (Group A, B, C, etc.). If this is acceptable, press ENTER on HUI's Numeric Entry Keypad, and the dialog closes.

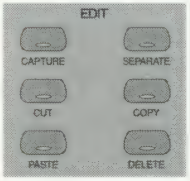
4. Alternatively, use the computer's mouse and keyboard to choose a name other than the default, select a different Group ID, or overwrite an existing group definition.

SUSPEND Switch

All Mix groups may be temporarily suspended by pressing the SUSPEND switch in the STATUS/GROUP switch matrix. Pressing this switch again will return to the previous overall Group status. When SUSPEND is enabled, the SUSPEND switch LED will flash. When SUSPEND is disabled, the SUSPEND switch LED will turn off.

The SUSPEND switch LED will always track the state of the Mix groups, but will ignore Edit groups.

EDIT Switches



Standard Pro Tools edit functions may be initiated by pressing the corresponding EDIT switches on HUI. These switches are labeled CAPTURE, SEPARATE, CUT, COPY, PASTE and DELETE.

F-Keys (Function Keys)

Eight Function Key switches (labeled F1-F8/ESC) are available. Currently available assignments include:

- F1 clears clipped meters and last held peaks simultaneously.

- F2 activates/deactivates the Relay (GPO) outputs on the rear panel of HUI. (See the *Mackie HUI User's Guide* included with your HUI for information on how to use the Relay outputs.) When pressing this switch, HUI will display "Relay outputs are now active" or

"Relay outputs are no longer active." (Relay #1 is activated by pressing the transport PLAY switch. Relay #2 is activated by pressing the transport RECORD switch.)

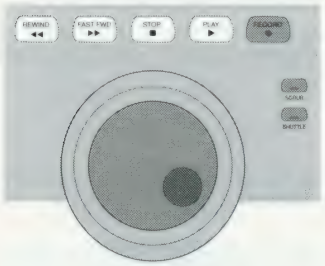
- F3 enables/disables the audible click indication for HUI's V-POT encoders. When pressing this switch, HUI will display "Rotary knobs will now click" or "Rotary knobs will no longer click."

- F4 displays the version number of HUI's current MIDI personality file installed on the host computer.

- F8/ESC serves as an Escape (ESC) switch to cancel out of any assignment mode or on-screen modal dialog.

Note: The functions for F5, F6, and F7 are reserved for future releases of Pro Tools.

Transport Switches and Scrub/Shuttle Wheel



Transport Switches

The Transport switches correspond to transport functions in Pro Tools. These switches are:

- RTZ (Return-To-Zero) – Sets playback cursor to the beginning of the session

- END (Go-To-End) – Sets playback cursor to the end of the session

- ONLINE – places Pro Tools' online/offline status (LED is lit when Pro Tools is online)

- LOOP – toggles Loop Playback mode state (LED is lit when Loop Playback is enabled), as enabled/disabled in Pro Tools' Options menu

- QUICKPUNCH – toggles QuickPunch recording mode state (LED is lit when QuickPunch is enabled), as enabled/disabled in Pro Tools' Options menu

- REWIND – rewinds through the session beginning from the current cursor position

- FAST FORWARD – fast-forwards through the session beginning from the current cursor position

- STOP – stops playback or recording

- PLAY – begins playback from current cursor position

- RECORD – arms Pro Tools for recording (LED flashes). Clicking the Play switch when record armed then initiates recording (LED is lit continuously)

In addition to the above, there are several modifier shortcuts for transport functions, some of which match their equivalent in Pro Tools:

- SHIFT/ADD-PLAY — Initiates half-speed playback

- SHIFT/ADD-STOP — Aborts the current record pass

- SHIFT/ADD- FAST FORWARD — Go-To-End

- SHIFT/ADD- REWIND — Returns to zero (RTZ)

- CTRL/CLUTCH-RECORD — cycles through the various record modes (normal, QuickPunch, Loop)

- CTRL/CLUTCH-ONLINE - cycles through available machine master choices, (such as Pro Tools, Serial Machine, and ADAT). Serial Machine and ADAT will only appear if you have Pro Tools' MachineControl option or the Digidesign ADAT Interface installed.

Loop Record Mode

Holding down the CTRL/CLUTCH switch and pressing the LOOP switch will place Pro Tools into Loop Record Mode (Pro Tools' Record switch in the Transport window will display "L" within the circle graphic). When this happens, Pro Tools will flash the Options menu, so that if the Transport window is closed, you can receive some visual indication of the mode change.

Transport Control of External Devices

HUI can be used to control devices other than Pro Tools, such as the Alesis ADAT® (using the Digidesign ADAT I/O Interface), or serial (9-pin) machine control transports (using the MachineControl™ option for Pro Tools). If you have either of these installed, the following functions are available:

- Holding the CTRL/CLUTCH switch and pressing the ONLINE switch will sequentially cycle through available transport master types (Pro Tools, Serial Machine, ADAT). To use either the ADAT Interface or MachineControl you must have the the corresponding option enabled in the Peripherals dialog.

- As you change the transport to control other options, HUI's VFD will post the message, "Transport now controls ADAT" or "Transport now controls Serial Machine."

- When Serial Machine is transport master and the remote system is in PAUSE mode, HUI's PLAY switch will blink and the STOP switch will light.

- When Serial Machine is transport master, and the remote system is cueing, HUI's PLAY and Scrub switches will blink, and the STOP switch will light. (Note that when Serial Machine is transport master, you can also jog or shuttle the deck by turning the Scrub/Shuttle wheel, but the "SCRUB IN USE..." warning will not appear in the VFD. You choose whether to jog or shuttle by pressing the Scrub or Shuttle button.)

- HUI's RECORD switch LED will always track the state of the device under control.

Footswitch Control

To make HUI more flexible, there are two general-purpose footswitch inputs on the rear panel that are used for general transport control.

Footswitch #1 performs the following functions:

- If Pro Tools is playing back, pressing Footswitch #1 will stop Pro Tools.

- If Pro Tools is recording, holding down the SHIFT/ADD switch and pressing Footswitch #1 will abort the recording.

- If Pro Tools is stopped, pressing Footswitch #1 will commence playback.

- Holding down the SHIFT/ADD switch and pressing Footswitch #1 will commence half-speed playback.

Footswitch #2 performs the following functions:

- Pressing Footswitch #2 toggles Pro Tools' record state on/off.

- Holding down the CTRL/CLUTCH switch and pressing Footswitch #2 repeatedly will cycle through the system's available record modes (*destructive* or *nondestructive*).

Scrub/Shuttle Wheel

A dedicated wheel is used to control Scrub and Shuttle functions. Pressing the SCRUB and SHUTTLE switches next to the Scrub/Shuttle wheel enables the respective mode.

When used in conjunction with the Zoom/Navigation/Selection switch quadrant, the Scrub/Shuttle wheel allows you to create and adjust waveform selections. (This is discussed in the next section.)

Scrub Mode

To enable Scrub mode:

1. Make sure playback in Pro Tools system is stopped.

2. Press the SCRUB switch. When Scrub mode is active, the SCRUB, FAST FORWARD and REWIND switch LEDs will light, and the VFD will display the message "SCRUB IN USE. Hit SCRUB or STOP switch to exit."

3. Rotating the Scrub wheel clockwise scrubs forward; counterclockwise scrubs backward. The start position for Scrubbing will be the current selection start point, or current cursor position if there is no selection.

4. To begin scrubbing from the selection end point, hold down the OPTION/ALL switch when pressing the SCRUB switch. At any time during scrubbing, pressing the Left or Right Arrow moves the current scrubbing position to the selection start/end.

5. While in either Scrub or Shuttle mode, you can toggle between the Scrub and Shuttle modes by pressing the appropriate switch. The current scrub or shuttle position will be retained through this transition.

6. Normal scrub resolution is dependent on the current zoom level. To get a fixed "fine scrub" resolution regardless of current zoom level, hold down the ⌘-ALT/FINE switch while scrubbing.

7. To exit Scrub mode, press the STOP or SCRUB switch. You can also exit Scrub mode by pressing the Spacebar on the Mac keyboard, typing ⌘-period or pressing Escape (F8/ESC) on either the HUI or Mac keyboard.

8. If you press other transport switches such as PLAY or FAST FORWARD while in SCRUB, the system will first leave SCRUB, followed by the chosen transport command.

Shuttle Mode

To enable Shuttle mode:

1. Make sure playback in Pro Tools system is stopped.

2. Press the SHUTTLE switch. When Shuttle mode is active, the SHUTTLE , FAST FORWARD and REWIND switch LEDs will light, and the VFD will display the message "SHUTTLE IN USE. Hit SHUTTLE or STOP switch to exit."

3. Rotating the Shuttle wheel clockwise shuttles forward; counterclockwise shuttles backward. The start position for Shuttling will be the current selection start point, or current cursor position if there is no selection.

4. To begin shuttling from the selection end point, hold down the OPTION/ALL switch when pressing the SHUTTLE switch. At any time during shuttling, pressing the Left or Right Arrow moves the current shuttling position to the selection start/end.

5. While in either Scrub or Shuttle mode, you can toggle between the Scrub and Shuttle modes by pressing the appropriate switch. The current scrub or shuttle position will be retained through this transition.

6. To exit Shuttle mode, press STOP or SHUTTLE switch. You can also exit Shuttle mode by pressing the Spacebar on the Mac keyboard, typing ⌘-period or pressing Escape (F8/ESC) on either the HUI or Mac keyboard.

7. If you press other transport switches such as PLAY or FAST FORWARD while in SHUTTLE, the system will first leave SHUTTLE, followed by the chosen transport command.

Shuttle Lock Mode

Pressing and holding down the CTRL/CLUTCH switch followed by a number will place the HUI in Shuttle Lock mode. The SHUTTLE switch LED will light while in Shuttle Lock mode. This special mode uses the Numeric Entry Keypad to control shuttle speed (0-9; "0" is off), as well as the +/- switches to control the playback direction. The wheel can also be used to adjust these parameters while in Shuttle Lock. Pressing the STOP or SHUTTLE switch exits Shuttle Lock mode.

Scrub/Shuttle "Lock Out" Behavior

When scrub or shuttle is engaged, all other Pro Tools operations and most HUI operations are "locked out." During this time, only certain controls will be available:

- Scrub/Shuttle wheel and switches
- Any transport switch (which will disengage Scrub/Shuttle mode and restore normal transport modes)
- Channel faders, Mute and Solo switches
- Pressing the ENTER switch while scrubbing/shuttling will enter Memory Locations

Any time you enter Scrub or Shuttle, the message "SCRUB IN USE" or "SHUTTLE IN USE" appears on the VFD to indicate these special modes are active, and that only the controls listed above will be available.

Scrub/Shuttle Operation using Serial Machine Control

You can also use HUI's SCRUB/SHUTTLE wheel to scrub (jog)/shuttle an external, serial machine control-capable deck if you have Digidesign's MachineControl software option installed and enabled in the *Peripherals* dialog:

- When Serial Machine is transport master, you can jog or shuttle the deck by using the SCRUB (jog) or SHUTTLE switches in combination with HUI's SCRUB/SHUTTLE wheel.
- The Jog function is available by pressing HUI's SCRUB switch. Turning the wheel will now jog the external machine.
- The Shuttle function is available by pressing HUI's SHUTTLE switch. Turning the wheel will now shuttle the external machine.
- To leave either mode, press either the SCRUB or SHUTTLE switch again, or press any other transport switch (PLAY, STOP, etc.).

Creating Selections Using the Scrub/Shuttle Wheel

HUI offers a flexible and powerful way to create and modify on-screen selections by using the Scrub/Shuttle wheel:

To create selections using the Scrub/Shuttle wheel:

1. Press the SCRUB or SHUTTLE switch on HUI. The start position will be the current selection's start point, or current location of the cursor if there is no selection. To SCRUB or SHUTTLE from the selection end point, hold down the OPTION/ALL switch when pressing the SCRUB or SHUTTLE switch.
2. If you hold down the SHIFT/ADD switch *before* the SCRUB or SHUTTLE switch is first pressed, or at the time the first wheel turn is made, your initial selection is kept. As you move the wheel, your selection will be expanded or trimmed, depending on the direction you are turning.
3. You can navigate to the front or back of your selection at any time (to change where you are scrubbing or shuttling) by pressing the Left/Right Arrow keys.

"Insertion Follows Scrub/Shuttle" Preference

Working with HUI's SCRUB/SHUTTLE wheel will differ depending on whether you have enabled the "Insertion Follows Scrub/Shuttle" checkbox in Pro Tools' Preferences dialog:

To create selections using the Scrub/Shuttle wheel if "Insertion Follows Scrub/Shuttle" is enabled:

1. If you first enter SCRUB or SHUTTLE and turn the wheel, and you do not hold down the SHIFT/ADD switch, your initial selection will be lost.

2. As you turn the wheel, you will be moving the future location of the "I-beam" edit cursor as the audio plays.

3. If you hold down the SHIFT/ADD switch b*efore* the SCRUB or SHUTTLE switch is first pressed, or at the time the first wheel turn is made, your initial selection is kept. As you move the wheel, your selection will expand, or will be trimmed (depending on the direction you are turning).

To create selections using the Scrub/Shuttle wheel if "Insertion Follows Scrub/Shuttle" is NOT enabled:

1. If you first enter SCRUB or SHUTTLE and turn the wheel, and you do *not* hold down the SHIFT/ADD switch, your initial selection is retained, allowing you to "roam" outside of the selection boundaries.

2. If you hold down the SHIFT/ADD switch, your original selection will be lost, and a new one will be created as you turn the wheel. Your new selection starts wherever you first hold down the SHIFT/ADD switch.

3. If you release the SHIFT/ADD switch, the scrub/shuttle position will roam free of the selection, and scrubbing/shuttling will no longer trim its length.

4. Holding down the SHIFT/ADD additional times will allow the current selection to be trimmed as needed.

User Tip

Using the Scrub/Shuttle wheel can be a powerful and fast way to define selections, modify them, and capture region areas as memory locations. This can especially be helpful when working with low-level or continuous material (such as classical music or post production dialog) whose on-screen waveforms may provide too little visual information to work with.

Here are some basic tips for working with the SCRUB/SHUTTLE wheel:

- If you want to keep your initial selection and simply trim it, remember to hold the SHIFT/ADD switch down when you enter scrub/shuttle or when you first move the wheel.

- If you aren't holding the SHIFT/ADD switch down when entering scrub/shuttle or moving the wheel, then the *first* wheel move with the Shift key held down will redefine the selection at the current scrub/shuttle position.

- Subsequent toggles of the SHIFT/ADD switch simply enable or disable selection trimming.

- At any time during scrubbing/shuttling you can press the Left or Right Arrow to move the current scrub position to the selection start/end.

- You can freely move between scrub and shuttle modes. The current scrub/shuttle position is retained though the transition between modes.

- If you enter scrub or shuttle but don't move the wheel or mouse, you can safely exit scrub/shuttle without affecting the selection, even if "Insertion Follows Scrub" is enabled.

Here's an example of how to use a combination of the various scrub/shuttle functions to define a selection:

1. Press the SHUTTLE switch to enter shuttle mode.

2. Shuttle along the timeline. When you get to the approximate selection in-point, press and hold down the SHIFT/ADD switch.

3. Continue shuttling down the timeline. When you get to the approximate out-point, release the Shift key. Your "rough selection" is now defined.

4. Press the SCRUB switch to enter scrub mode. (You will be scrubbing at the last shuttle position.)

5. Press the Left Arrow quadrant key to instantaneously move the scrub position to the selection start.

6. Holding the SHIFT/ADD switch down (to retain your selection), scrub your selection in-point until you reach your desired location.

7. Press the Right Arrow quadrant key to instantaneously move your scrub out-point to the selection end.

8. Holding the SHIFT/ADD switch down (to retain your selection), scrub your out-point until you reach your desired location.

Capturing Memory Locations and Freeing the Cursor

When working with scrub/shuttle, HUI has additional special features having to do with memory locations and freeing the cursor to define a new selection:

- Pressing the down arrow key on the Zoom/Navigation/Selection Switch Quadrant will capture the present selection as a memory location, and will also "free up" the scrub/shuttle cursor to create a new selection.

- Pressing the Up Arrow key on the switch quadrant will free up the cursor only. (It will not capture a memory location.)

- Memory locations can be captured at any time in the normal manner by pressing the ENTER key on the HUI's numeric keypad

User Tip

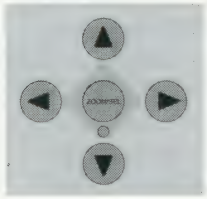
This function can be extremely useful in post production dialog editing (or any other application that involves defining a lot of separate regions using scrub/shuttle):

1. Define a selection using any of the various techniques.

2. Once you have your desired selection defined, press the down arrow to capture a memory location point and free up the cursor.

3. Now, start the selection process "downstream" from your last selection, defining and capturing selections as you go.

Zoom/Navigation/Selection Switch Quadrant



This is a four-switch quadrant, labeled with vertical and horizontal arrows. A switch in the center (with red LED), labeled ZOOM/SEL allows the switch quadrant to change its function to one of three modes: Navigation mode, Zoom mode, and Selection mode. The functions are explained as follows:

A. Navigation Mode (default; LED is off)

In Navigation mode, the ZOOM switch LED is off. This is HUI's default mode. The switch quadrant acts as region/edit/track location selector.

To position the edit cursor:

- Left Arrow = moves the edit cursor to previous region boundary or sync point (corresponds to Option-Tab on Mac keyboard.)
- Right Arrow = moves the edit cursor to next region boundary or sync point (corresponds to Tab on Mac keyboard)

To extend the edit selection:

- Holding down SHIFT/ADD = extends the selection
- SHIFT/ADD + Left Arrow = allows selection of preceding region boundaries
- SHIFT/ADD + Right Arrow = allows selection of forward region boundaries

To center selection points on-screen:

- OPTION/ALL + Left Arrow (or alternatively, IN transport switch) = centers the left side of the current on-screen waveform selection in the Edit Window (corresponds to Left Arrow on Mac keyboard)
- OPTION/ALL + Right Arrow (or alternatively, OUT transport switch) = centers the right side of the on-screen waveform selection in the Edit Window (corresponds to Right Arrow on Mac keyboard)

Marking In/Out

The Up and Down Arrows can be used as "mark-in" and "mark-out" controls. (HUI also can do this with its dedicated "In" and "Out" switches in the Audition switch row above the transport switches.)

B. Zoom Mode (LED is lit)

Pressing the Zoom switch once will enter "Zoom" mode, indicated when the ZOOM switch LED is lit. The switch quadrant controls the waveform zoom display.

To adjust the zoom view:

- Left Arrow = decreases horizontal zoom view
- Right Arrow = increases horizontal zoom view
- Up Arrow = increases vertical zoom view
- Down Arrow = decreases vertical zoom view

C. Selection Mode (LED flashes)

Pressing the Zoom switch a second time will enter Selection Adjustment mode, indicated when the ZOOM switch LED flashes. When used in tandem with the Scrub/Shuttle Wheel, the switch quadrant allows waveform selections to be created and adjusted.

To make a selection in Selection Adjustment mode:

1. Press the ZOOM/SEL switch until the center switch LED is flashing. You are now in Selection Adjustment mode.

2. Hold down the Left Arrow switch and move the wheel to adjust the selection in-point.

3. Hold down Right Arrow switch and move the wheel to adjust the selection out-point.

4. Press the Up Arrow switch to move your selection to the previous track (vertically). Holding down the SHIFT/ADD switch while doing this extends your selection, adding tracks as you go.

5. Press the Down Arrow switch to move your selection to the next track (vertically). Holding down the SHIFT/ADD switch while doing this extends your selection, adding tracks as you go.

6. Double-clicking on the Left Arrow switch will set the cursor to an I-beam position at the current selection's left edge.

7. Double-clicking on the Right Arrow switch will set the cursor to an I-beam position at the current selection's right edge.

User Tip

HUI's Selection Adjustment mode is extremely handy for defining on-screen selections for editing, or for moving your set selection length around the screen when performing looped automation passes. For example, let's say you have defined a selection of about 20 seconds in length, wherein you are performing a series of fader and pan moves. You can use Pro Tools' Loop Playback mode to rehearse and perform your moves over this section until you are satisfied with the result. Using HUI's Selection Adjustment mode, if you hold down both the Left and Right Arrow keys, and then turn the wheel to the right until you have moved to another area further "downstream," you can continue with your mix on another area of the same length.

User Tip

Remember that these following scrubbing/shuttling tips can also be helpful in making your selection:

- Holding down the ⌘-ALT/FINE switch enables scrubbing at a fixed fine resolution regardless of the current zoom settings.

- Holding down the SHIFT/ADD switch = allows new selection to be made while scrubbing/shuttle; end of selection is then made when releasing the Shift switch

- Holding down the OPTION/ALL switch = begins scrubbing/shuttling from the end of a selection

Once you have finished making a selection, you can perform an edit function using the EDIT switch matrix, or adjust the selection using the following keyboard shortcuts:

To position the edit cursor at a selection's edge:

- Double-click Left Arrow = positions an I-beam cursor at the current selection's left edge

- Double-click Right Arrow = positions an I-beam cursor at the current selection's right edge

To move the edit selection:

- Up Arrow = moves the selection highlight to the previous track

- Down Arrow = moves the selection highlight to the next track

To adjust selection points:

- Left Arrow + Scrub/Shuttle wheel rotation = adjusts the selection IN point.

- Right Arrow + Scrub/Shuttle wheel rotation = adjusts the selection OUT point

- Left Arrow + Right Arrow + Scrub/Shuttle wheel rotation = adjusts the selection's time position while retaining its duration

To extend the edit selection:

- SHIFT/ADD + Up Arrow = extends selection to the previous track
- SHIFT/ADD + Down Arrow = extends selection to the next track
- OPTION/ALL + Up Arrow = removes selection from the topmost track
- OPTION/ALL + Down Arrow = removes selection from the bottommost track

Navigating On-screen View of Pro Tools

The four-switch quadrant also allows for navigation of Pro Tool's on-screen view. The following switch functions apply to all three switch quadrant modes (Navigation mode, Zoom mode, and Selection mode):

To scroll the session view one window at a time:

- ⌘-ALT/FINE + Left Arrow = scrolls either the Mix or Edit window (whichever is front-most) horizontally to the left by a single window width (corresponds to Option-Page Up on the Mac Keyboard)
- ⌘-ALT/FINE + Right Arrow = scrolls either the Mix or Edit window (whichever is front-most) horizontally to the right by a single window width (corresponds to Option-Page Down on the Mac Keyboard)
- ⌘-ALT/FINE + Up Arrow = scrolls either the Mix or Edit window (whichever is front-most) vertically upward by a single window height (corresponds to Page Up on the Mac Keyboard)
- ⌘-ALT/FINE+ Down Arrow = scrolls either the Mix or Edit window (whichever is front-most) vertically downward by a single window height (corresponds to Page Down on the Mac Keyboard)

To scroll to beginning and end of the session view:

- OPTION/ALL + ⌘-ALT/FINE + Left Arrow = scrolls either the Mix or Edit window (whichever is front-most) to the beginning of the session (corresponds to Option-Home on the Mac Keyboard)
- OPTION/ALL + ⌘-ALT/FINE + Right Arrow = scrolls either the Mix or Edit window (whichever is front-most) to the end of the session (corresponds to Option-End on the Mac Keyboard)
- OPTION/ALL + ⌘-ALT/FINE + Up Arrow = scrolls either the Mix or Edit window (whichever is front-most) to the top of the session (corresponds to Home on the Mac Keyboard)
- OPTION/ALL + ⌘-ALT/FINE + Down Arrow = scrolls either the Mix or Edit window (whichever is front-most) to the bottom of session (corresponds to End on the Mac Keyboard)

AUDITION, PRE/POST, IN/OUT Switches

The AUDITION switch is used in conjunction with the PRE/POST and IN/OUT switches to play currently selected audio. This switch is latching, meaning playback will continue until AUDITION is pressed again or until another transport function is selected (for example, STOP).

The PRE and POST switches activate pre-roll and post-roll. When these switches are active, their LEDs will light. These switches also work in conjunction with the AUDITION switch to audition around various edit areas.

The IN and OUT switches can be used to mark In and Out edit points during playback. These switches also work in tandem with the AUDITION switch to audition In/Out edit points.

User Tip

You can leave the present audition mode at any time, and go to any transport command or other audition mode. For example, if you are auditioning up to the selection from the pre-roll point, you can press the transport's Play switch to enter "normal" playback mode.

Setting Pre/Post Roll

To enter a Pre- or Post-Roll time:

1. Holding down the ⌘-ALT/FINE switch, press either the PRE or POST switch. The switch LED will flash, indicating that pre- or post-roll entry mode is active.

2. Enter values on the numeric keypad. This enters a pre- or post-roll time according to the Grid/Time Display value used in Pro Tools.

3. Press the Left and Right Arrows in the switch quadrant to cycle through the numeric fields in the Pre- or Post-Roll counters in Pro Tools' Transport window. Press the Up and Down Arrows in the switch quadrant to increase or decrease the current (flashing) numeric field value. Press the CLR (Clear) switch to clear the counters.

4. To confirm the entered time value, press the ENTER switch. (Holding down the OPTION/ALL switch and then pressing the ENTER switch enters the same time value for both pre- and post-roll). The entered numbers will show up in the Time Counter Display.

5. Alternatively, press the F8/ESC switch to abort numeric entry and leave the times unchanged.

If Pro Tools' Transport window is not already open on-screen when editing pre-/post-roll times from HUI, the Transport window will open automatically while the times are being entered, and then will close after entry is confirmed (ENTER) or cancelled (F8/ESC).

To manually enter selection start and end times:

1. Holding down the ⌘-ALT/FINE switch, press the IN or OUT switch in the Audition switch matrix. The switch LED will flash, indicating that Start or End time entry mode is active.

2. Enter values on the numeric entry keypad. This enters a Start or End time according to the Grid/Time Display value used in Pro Tools.

3. Press the Left and Right Arrows in the switch quadrant to cycle through the numeric fields in the Start and End counters in Pro Tools' Transport window. Press the Up and Down Arrows in the switch quadrant to increase or decrease the current (flashing) numeric field value. Press the CLR (Clear) switch to clear the counters.

4. To confirm the entered time value, press the ENTER switch. (Holding down the OPTION/ALL switch and then pressing the ENTER switch enters the same value for both Start and End times). The entered numbers will show up in the Time Counter Display.

5. Alternatively, press the F8/ESC switch to abort numeric entry and leave the times unchanged.

If Pro Tools' Transport window is not already open on-screen when entering selection start and end times from HUI, the Transport window will open automatically while the times are being entered, and then will close after entry is confirmed (ENTER) or cancelled (F8/ESC).

AUDITION Functions

Pressing the AUDITION switch, followed by pressing combinations of the PRE, IN, OUT or POST switches, allows you to audition in and around an edit point.

Since AUDITION is a latching control, audio playback will continue until you press AUDITION again, or select any other transport function (such as STOP).

When the AUDITION switch is enabled, pressing the PRE, IN, OUT or POST switches works as follows:

- PRE – Plays audio starting at the pre-roll point up to the beginning of the selection. (Corresponds to Option-Left Arrow on the Mac keyboard.)
- IN – Plays audio starting at the beginning of the selection and lasting the length of the pre-roll amount. (Corresponds to ⌘-Left Arrow on the Mac keyboard.)
- OUT – Plays audio starting before the selection end point by the Post-Roll amount. (Corresponds to Option-Right Arrow on the Mac keyboard).
- POST – Plays audio starting at the end of a selection by the Post-Roll amount. (Corresponds to Command-Right Arrow on the Mac keyboard.)
- Holding down the ⌘-ALT/FINE and OPTION/ALL switches, pressing PRE or IN = Plays audio starting at the pre-roll point, continuing through the selection start, and ending after the selection start point by the post-roll amount. (Corresponds to Command-Option-Left Arrow on the Mac keyboard.)
- Holding down the ⌘-ALT/FINE and OPTION/ALL switches, pressing OUT or POST = Plays audio starting before the selection end point by the pre-roll amount, continuing through the selection end point, and ending after the post-roll time has elapsed. (Corresponds to Command-Option-Right Arrow.)

Time Counter Display & Rude Solo Light

This eight-character, seven-segment LED display shows the current session time position in standard formats, as selected in the Pro Tools software (selection is not available on HUI). When there is no session currently opened, this display will be blank.

Three LEDs positioned next to the display indicate the current time display mode:

- TIME CODE – SMPTE format
- FEET – Feet and Frames
- BEATS – Bars and Beats
- All indicator LEDs off – Minutes/Seconds or Samples (depending on the Time Display mode chosen)

Host Communication Status LED

If HUI responds, the far-right period (".") in the LED time counter display will blink in tandem with the running status messages. This shows that HUI is communicating properly with the host computer. If communication is interrupted (by loss of power or cable connection), HUI's VFD will display the message "HUI has gone offline and is waiting for MIDI input." If HUI and the host computer lose communications, power down HUI, wait a few seconds, and then power up HUI. Since Pro Tools remembers which peripherals are connected to it, communications will automatically be reestablished as work is resumed. If communication problems persist, make sure your cable connections are properly configured and secured.

Rude Solo Light

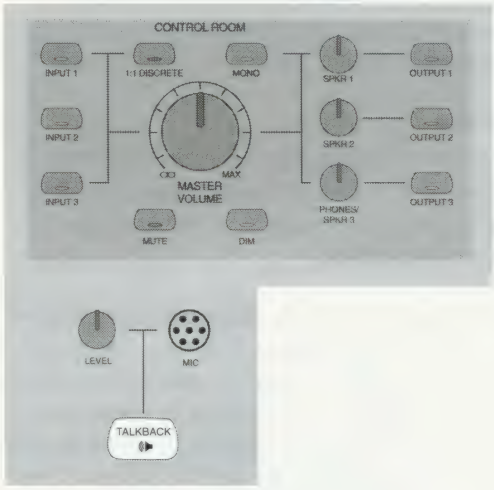
The Rude Solo Light flashes whenever there is at least one channel strip in the active session that is soloed. This occurs in addition to the "implied mute" flashing on MUTE switches on all tracks activated by the solo process.

Numeric Entry Keypad

The Numeric Entry Keypad corresponds to Macintosh keypad operations for Pro Tools. It is used for storing and recalling memory locations, data entry (such as counter values), and confirming an editing operation:

- For modal dialog messages from Pro Tools, the ENTER switch acts as an "OK" button for confirming, while the F8/ESC switch acts as a Cancel switch.
- For numeric entry of counter and display values, pressing the ENTER switch enters values into Pro Tools' counters or displays. Pressing the F8/ESC switch cancels out of numeric entry and leaves settings unchanged.
- Pressing the Forward Slash switch ("/") allows entry in and tabbing between fields for Start/End/Length times in the Edit Window.
- Memory Locations can be entered during playback and recording by pressing the ENTER switch (uses next available location). Pressing the ENTER switch followed by a number will store at the chosen numeric location.
- Pressing a number followed by the Period switch (".") recalls an entered Memory Location.
- You can set pre-/post-roll times holding down the ⌘-ALT/FINE switch and the appropriate switch (PRE/POST) and then entering values in the Numeric Entry Keypad.

Analog Monitoring Section



An analog monitoring section is available to provide standard control room, studio cue, talkback, and alternate two-track source monitoring facilities. The monitor section supports monitoring of up to three stereo input sources, and will output to any of three stereo destinations (for alternate speaker monitoring). In addition, it can supply a special discrete surround mix monitor mode for 5.1 or LCRS surround mixing.

To learn how to configure and use this section with the rest of your studio, please refer to the *Mackie HUI User's Guide* (included with your HUI).

Troubleshooting & Diagnostics

HUI provides a built-in, comprehensive diagnostic test upon startup. In the unfortunate case that your HUI is experiencing problems, you can confirm that your HUI is fully functional by running this test.

Startup Test

As HUI initializes during startup, it goes through a series of diagnostics. Once these internal tests are complete, HUI will display a welcome message, along with its current firmware version number.

If your HUI does *not* display its opening message, it may be experiencing hardware problems. In this case, disconnect your MIDI in/out connections and try again. At this point, if HUI does not pass its initial test, you can be certain that there is a problem within your unit. Contact Mackie Designs Customer Support at the phone number included with your HUI registration materials for assistance.

In addition, HUI has a series of built-in tests designed to let you confirm that it is working properly. HUI, Pro Tools, your MIDI interface and setup, OMS, and your Macintosh computer all work together to create a unified *system*. These diagnostics allow you to confirm that HUI is working to factory spec, and that your unit is operating properly.

To place HUI into a special diagnostic mode:

1. Immediately after turning on the power switch, hold down the OPTION/ALL and SHIFT/ADD switches.

2. In diagnostic mode, all LEDs on the HUI control panel should be lit. Take notice of any LEDs that fail to illuminate.

3. Rotate the MASTER VOLUME pot in the Analog Monitoring section to control the speed of the channel fader travel. Make sure that the channel faders are responding to servo control.

4. Press Footswitch #2 to exit the test routine. If you do not have a footswitch connected, simply power down HUI, wait a few moments, and then power on HUI.

5. Once the initial startup routine is successfully completed, HUI will display "Welcome to HUI" in the VFD.

We here at Digidesign, along with our friends at Mackie Designs, know how difficult it can be to troubleshoot systems involving multiple components. With the comprehensive diagnostics included in your HUI, you can determine definitively whether or not HUI (on its own) is working properly. While Customer Service personnel at both companies will be working to help you if any problems occur, here are the right places to start when you have a problem:

- You should contact Mackie Designs if your problem lies with your HUI hardware.

- You should contact Digidesign if you have problems with Pro Tools software or MIDI services (such as MIDI interface connections, OMS, and so on).

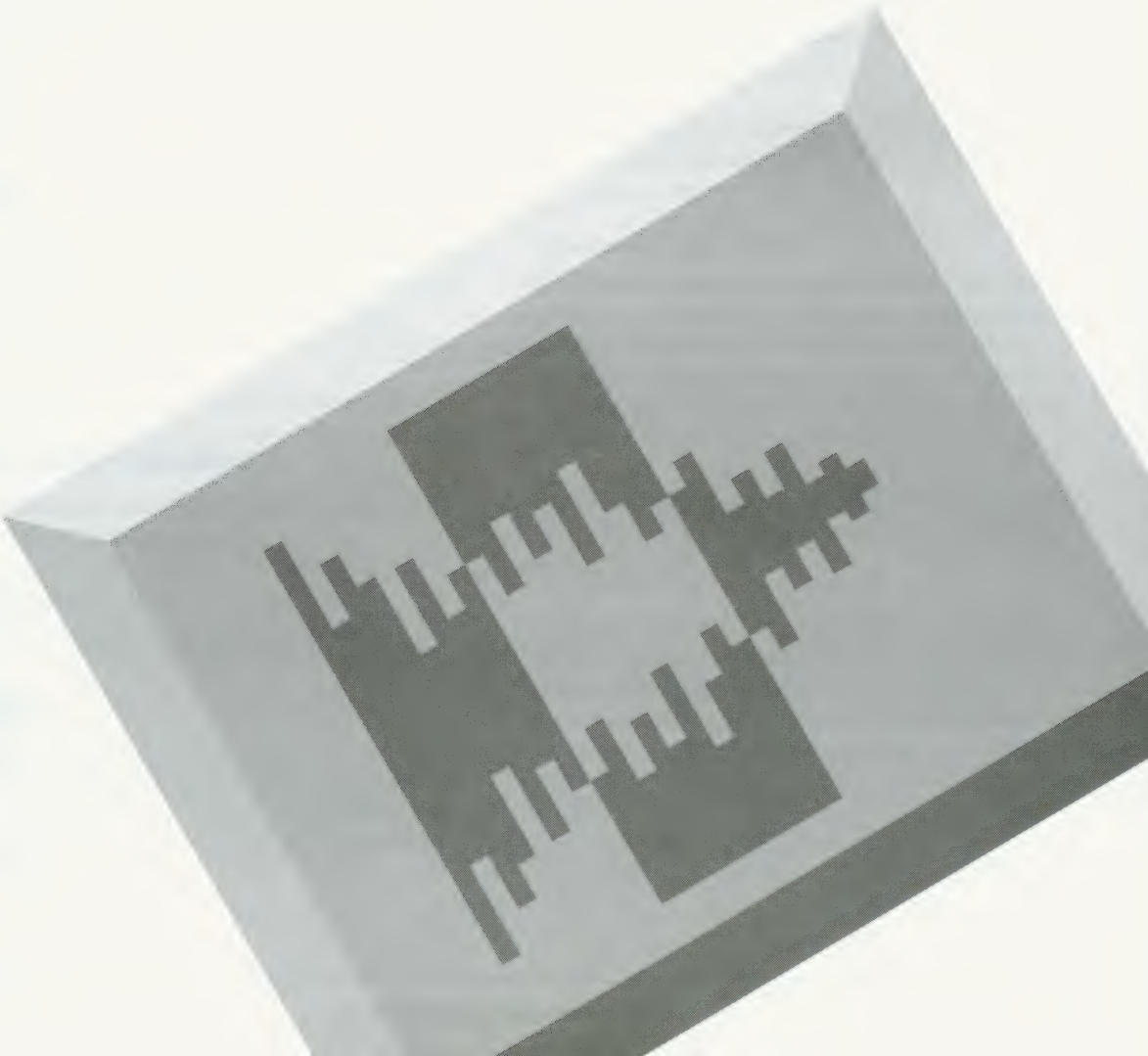
When calling Mackie or Digidesign Customer Support, be sure to indicate to the operator that you are using a HUI with Pro Tools, and a Pro Tools/HUI technician will assist you. Provide the technician with a report of your problems and results of the diagnostic test(s).

MIDI Monitor Mode

MIDI Monitor Mode allows the last several MIDI messages transmitted or received by HUI to be displayed in hexadecimal code on the VFD. To gain access to MIDI Monitor Mode, hold down the OPTION/ALL switch and press the F4 switch. To leave MIDI monitor mode, hold down the OPTION/ALL switch and press F4 switch again.

This concludes the chapter on the Mackie HUI controller. You should now be able to use your HUI to perform basic Pro Tools operations such as mixing, editing, automation, and Plug-In editing. Refer to Appendix B of this guide for control page tables for various Digidesign Plug-Ins.

JL Cooper CS-10
MIDI Controller



JL Cooper CS-10 MIDI Controller

Introduction

The basic JL Cooper CS-10 and CS-10² units are eight fader controllers. The CS-10² can also accommodate up to seven CS-10ˣ expander modules (each containing eight faders) for a total of 64 faders. Pro Tools currently supports a maximum of 32 faders using an expanded CS-10²/CS-10ˣ configuration. This means that the maximum current configuration would be a single CS-10² and three CS-10ˣ units.

User Tip

Don't forget about bank swapping! While Pro Tools currently supports a maximum of 32 faders with these units, you can use the Left and Right Arrows on the CS-10²/CS-10ˣ to easily bank swap the faders to control an entirely different set of tracks.

Fader Switch Functions

The switches that appear directly above the fader strips control one of the following modes:

- Solo – Switches change solo state of tracks
- Mute –Switches change mute state of tracks

When the fader switches control mutes, any track that is currently muted as a result of other track(s) being soloed will have its associated switch LED flash. This shows you that the track's muting is "implied" due to other soloed track(s).

- Memory Location — Switches recall/set Memory Locations
- Track Selection – Switches choose which tracks are selected on-screen (for editing/deletion, etc.)
- Track Record Arming – Switches change record status of tracks
- Assigns a Target Track (for pan/send editing)

To cycle forward through the different switch modes:

1. Press the Master Status button (located directly above the vertical nulling LEDs).

2. Alternatively, holding down the Option key (F5), press the Master Status button to cycle through the switch modes in reverse.

Fader Switch Status LEDs

Since the CS-10 was originally designed, some newer modes for the row of switches above the faders have been added to the MIDI Controller Personality file for the CS-10. These modes use combinations of lit status LEDs to indicate the currently active function for the row of switches. The status LEDs are next to the Master Status button.

Track record-arming mode is indicated when both Solo and Select LEDs (the top and bottom status LEDs respectively) are lit.

When target channel strip mode is enabled, all four LEDs will be lit. This mode allows you to choose which channel strip in a bank is affected when the pan and five sends knobs are moved. The target channel strip is indicated by a *red* outline around the channel strip name.

Vertical Null LEDs

Since the CS-10 does not have moving faders, the controller's fader positions may often be "out of sync" with Pro Tool's on-screen fader positions. Pro Tools' nulling feature has been provided to help with this problem. When you move a fader, it will not actually affect the volume control until the fader has passed through the null point. The vertical null LEDs on the CS-10 indicate which way the last touched fader must be moved in order to pass through the null. Alternatively, you can also watch Pro Tools' on-screen AutoMatch indicators.

Additional Switch Functions

- F1 = Sets selection start point
- F2 = Sets selection end point
- F3 = Capture region(s)
- F4 = Separate region(s)
- F5 = Option key
- F6 = Control key
- F7 = Command key
- F8 = Cycles through selection of Edit tools
- F9 = toggles Online/Offline status

- Option + Memory Location switches = Sets memory location points when the current active mode for the fader switches is "Memory Locations."
- Shift + Memory Location Switches = Extends the current selection when the current mode for the fader switches is "Memory Locations." (Same as Shift-click.)

User Tip

If you wish to use Memory Locations mode with your CS-10 family controller, we recommend setting your Pro Tools Preferences so that memory locations are auto-named. This way when you create a memory location on-the-fly during playback or recording, you will not have to name and enter your location and thereby interrupt operations.

- Left Arrow = Bank swaps channel strips to the left
- Right Arrow = Bank swaps channel strips to the right
- Option + Left Arrow = Scrolls bank to the left by a single channel strip
- Option + Right Arrow = Scrolls bank to the right by a single channel strip

- Shift + Left Arrow = Zooms out horizontal view (time axis)
- Shift + Right Arrow = Zooms in horizontal view (time axis)
- Shift + Up Arrow = Zooms in vertical view (amplitude axis)
- Shift + Down Arrow = Zooms out vertical view (amplitude axis)

Rotary Knob Functions

When controlling a TDM configuration, the six rotary knobs on the CS-10 main unit control:

- Pan and five Sends, or

- Six Plug-In Controls in the active Plug-In window.

When in the top mapping page, the rotary knobs edit pan and five sends. The top page is indicated by the letters "PA" appearing in the two-character LED.

While the CS-10 allows you to edit the various send levels using the rotary controls, you have no access to Send Mutes. You must control Send Muting using the mouse.

By holding down the Option switch (F5) and pressing the Up/Down Arrows, you can navigate through Plug-In control parameter pages, and use the rotary knobs to control the various Plug-In parameters.

To cycle through the Plug-In control pages:

- Up Arrow = Go to previous page
- Down Arrow = Go to next page
- Option (F5)-Up Arrow = Go to first page (LED will display "PS" for Pan + five Sends)
- Option (F5)-Down Arrow = Go to last page (LED will display "Fx," where x = last page)
- After changing pages, the two-character LED will show the current page symbol ("P1," "P2," and so on), until a fader is moved at which time the LED will revert to showing the fader's current level in dB values.

Transport Switches

The CS-10 has five, standard transport control switches:

- Rewind
- Fast Forward
- Play
- Stop
- Record

Holding down the Control switch (F6) and pressing the Record switch repeatedly cycles through the various recording modes (Loop Record, Destructive Record, and QuickPunch).

In addition, the following special modes are supported with modifier keys:

- Shift + Play = enduces half-speed playback
- Shift + Rewind = Return-to-Zero (goes to beginning of session)
- Shift + FF = Go-to-End (goes to end of session)
- Shift + Stop = Aborts (cancel) recording pass
- Control (F6) + F9 = Cycles thru master transport mode (Pro Tools, Serial Machine Control, or ADAT)

Transport Control of External Devices

The CS-10 can be used to control devices other than Pro Tools such as the Alesis ADAT® (using the Digidesign ADAT I/O Interface), or serial (9-pin) machine control transports (using the MachineControl™ option for Pro Tools). If you have either of these installed, the following functions are available:

- Holding down the Control switch (F6) and pressing the Online switch (F9) will sequentially cycle through available transport master types (Pro Tools, Serial Machine, ADAT). In order to have *ADAT* show up as a choice, you must have a Digidesign ADAT Interface installed and enabled in the Peripherals dialog. Similarly, you must have the Digidesign MachineControl software option installed and enabled in the Peripherals dialog, in order to use MachineControl.
- The RECORD switch LED will always track the state of the device under control.

In order to use master transport control of Serial Machine Control or ADAT devices, you must have installed and configured the optional Digidesign ADAT Interface or Machine Control plug-in software.

Scrub and Shuttle Wheel

Scrub and shuttle modes are supported using the CS-10 Scrub/Shuttle wheel. Pro Tools will always scrub the current edit cursor position on the selected track or track pair.

If you are using a multiple track *edit group*, Pro Tools will scrub/shuttle the topmost track pair in the selected edit group (far-left in the Mix window). If you wish to scrub/shuttle other tracks in an edit group, you must first disable the group (or use the *Suspend Groups* command), and then position the edit cursor over the track or track pair you wish to scrub *before* entering Scrub/Shuttle modes.

While in Scrub/Shuttle mode, all other screen activity is locked out, and the Edit Window status display area (lower-left corner of the window) will display "Scrub" or "Shuttle."

Keyboard Shortcuts

- Scrub switch located to the left of the Scrub/Shuttle wheel = toggles Scrub mode on/off
- Shuttle switch located to the right of the Scrub/Shuttle wheel = toggles Shuttle mode on/off
- Pressing the Transport's *Stop* button = exits Scrub or Shuttle mode
- Holding down the Command key (F7) enables scrubbing at a fixed fine resolution regardless of the current zoom settings.
- Holding down the Shift switch = allows new selection to be made while scrubbing/shuttle; end of selection is then made when releasing the Shift swtich
- Holding down the Option switch = begins scrubbing/shuttling from the end of a selection

Creating Selections Using the Scrub/Shuttle Wheel

The CS-10 offers a flexible and powerful way to create and modify on-screen selections by using the Scrub/Shuttle wheel:

To create selections using the Scrub/Shuttle wheel:

1. Press the Scrub or Shuttle switch on the CS-10. The start position will be the current selection's start point, or current location of the I-beam cursor position if there is no selection. To Scrub or Shuttle from the selection end point, hold down the Option switch when pressing the Scrub or Shuttle switch.

2. If you hold down the Shift switch *before* the Scrub or Shuttle switch is first pressed, or at the time the first wheel turn is made, your initial selection is kept. As you move the wheel, your selection will be expanded or trimmed, depending on the direction you are turning.

3. You can navigate to the front or back of your selection at any time (to change where you are scrubbing or shuttling) by pressing the Left/Right Arrow keys.

"Insertion Follows Scrub/Shuttle" Preference

Working with CS-10's Scrub/Shuttle wheel will differ depending on whether you have enabled the "Insertion Follows Scrub/Shuttle" checkbox in Pro Tools' Preferences dialog:

To create selections using the Scrub/Shuttle wheel if "Insertion Follows Scrub/Shuttle" is enabled:

1. If when you first enter Scrub or Shuttle and turn the wheel, and you do not hold down the Shift switch, your initial selection will be lost.

2. As you turn the wheel, you will be moving the future location of the "I-beam" edit cursor as the audio plays.

3. If you hold down the Shift switch *before* the Scrub or Shuttle switch is first pressed, or at the time the first wheel turn is made, your initial selection is kept. As you move the wheel, your selection will expand, or will be trimmed (depending on the direction you are turning).

To create selections using the Scrub/Shuttle wheel if "Insertion Follows Scrub/Shuttle" is NOT enabled:

1. If when you first enter Scrub or Shuttle and turn the wheel, and you do *not* hold down the Shift switch, your initial selection is retained, allowing you to "roam" outside of the selection boundaries.

2. If you hold down the Shift switch, your original selection will be lost, and a new one will be created as you turn the wheel. Your new selection starts wherever you first hold down the Shift switch.

3. If you release the Shift switch, the scrub/shuttle position will roam free of the selection, and scrubbing/shuttling will no longer trim its length.

4. Holding down the Shift additional times will allow the current selection to be trimmed as needed.

User Tip

Using the Scrub/Shuttle wheel can be a powerful and fast way to define selections, modify them, and capture region areas as memory locations. This can especially be helpful when working with low-level or continuous material (such as classical music editing or post production dialog editing) whose on-screen waveforms may provide too little visual information to work with.

Here are basic tips for working with the Scrub/Shuttle wheel:

- If you want to keep your initial selection and simply trim it, remember to hold the Shift switch down when you enter scrub/shuttle or when you first move the wheel.
- If you aren't holding the Shift switch down when entering scrub/shuttle or moving the wheel, then the *first* wheel move with the Shift key held down will redefine the selection at the current scrub/shuttle position.
- Subsequent toggles of the Shift switch simply enable or disable selection trimming.
- At any time during scrubbing/shuttling you can press the Left or Right Arrow to move the current scrub position to the selection start/end.
- You can freely move between scrub and shuttle modes. The current scrub/shuttle position is retained though the transition between modes.
- If you enter scrub or shuttle but don't move the wheel or mouse, you can safely exit scrub/shuttle without affecting the selection, even if "Insertion Follows Scrub" is enabled.

Here's an example of how to use a combination of the various scrub/shuttle functions to define a selection:

1. Press the Shuttle switch to enter shuttle mode.
2. Shuttle along the timeline. When you get to roughly the selection in-point, press and hold down the Shift switch.
3. Continue shuttling down the timeline. When you get to roughly the out-point, release the Shift key. Your "rough selection" is now defined.
4. Press the Scrub switch to enter scrub mode. (You will be scrubbing at the last shuttle position.)
5. Press the Left Arrow quadrant key to instantaneously move the scrub position to the selection start.
6. Holding the Shift switch down (to retain your selection), scrub your selection in-point until you have exactly what you want.
7. Press the Right Arrow quadrant key to instantaneously move your scrub out-point to the selection end.
8. Holding the Shift switch down (to retain your selection), scrub your out-point until you have exactly found your desired out-point.

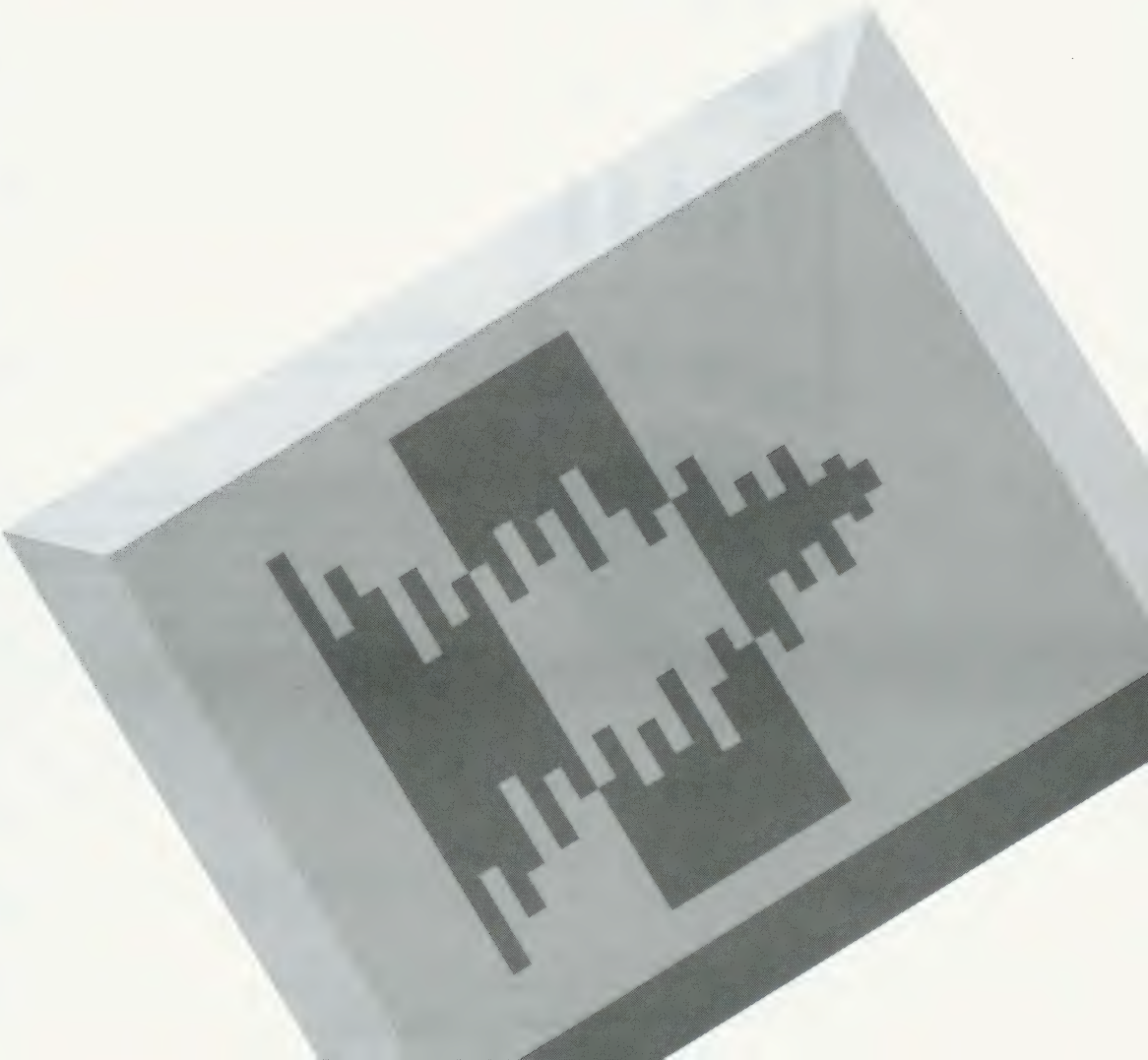
User Tip

This function can be extremely useful in post production dialog editing (or any other application that involves defining a lot of separate regions using scrub/shuttle):

1. Define a selection using any of the various techniques.
2. Once you have your desired selection defined, press the down arrow to capture a memory location point and free up the cursor.
3. Now, start the selection process "downstream" from your last selection, defining and capturing selections as you go.

This concludes the chapter on the JL Cooper CS-10 controller. You should now be able to use your CS-10 to assist in performing basic Pro Tools operations such as mixing, editing, and Plug-In editing. Refer to Appendix B of this guide for control page tables for various Digidesign Plug-Ins.

Penny & Giles
MM-16/DC-16
MIDI Controllers



Penny & Giles MM-16/DC-16 MIDI Controllers

Introduction

The Penny & Giles MM-16 and DC-16 controllers work with Pro Tools as a 16-channel strip controller. There are two, separate MIDI Personalities for the MM-16 and DC-16.

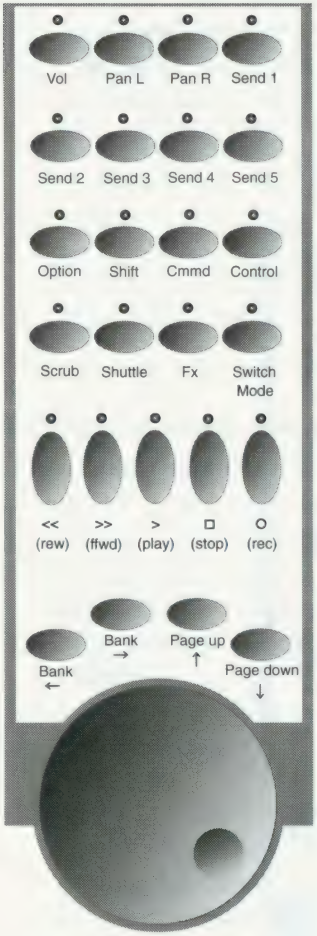
These controllers have unique "continuous fader" belt controls, and ladder-styled LED displays imbedded within each belt to indicate levels at all times. In this way, working with the MM-16 or DC-16 is very similar to working on a touch-sensitive motorized-fader control surface. Also, you can reliably punch into your automation data at any point in time, since you are *always* at your automation null point.

When connecting a Penny & Giles MM-16 or DC-16, be sure to use the MIDI ports on the rear panel labeled "Control In" and "Aux Out."

DC-16

The DC-16 is a new and improved version of Penny & Giles's original MM-16 MIDI controller. It does not have silk-screened labels for its switch controls; instead, an overlay is provided that allows you to place an insert inside for clear labeling of the various controls. Penny & Giles has prepared an label insert for the DC-16 specifically for Pro Tools. While this User's Guide does provide the label insert information to get up and running, you may wish to contact your Penny & Giles dealer or distributor for information on how to get a Pro Tools-specific insert, if your unit did not come with this insert.

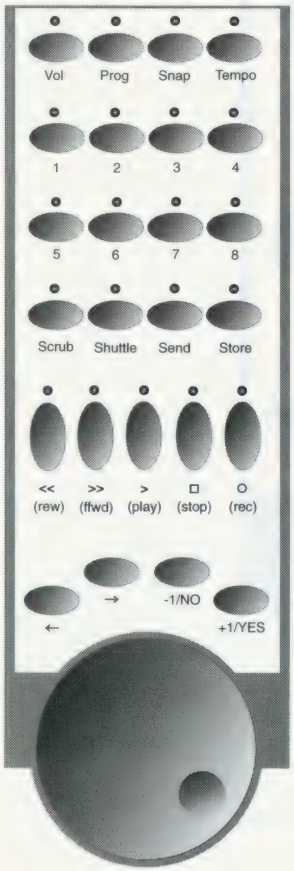
In case you do not yet have this insert, the following illustration is provided for your reference.



The DC-16 switch assignments for Pro Tools

MM-16

If you are an MM-16 owner, you may require an updated firmware version from Penny & Giles to ensure that the various LEDs on the front panel control will light correctly when used with Pro Tools. A few of these LEDs have different MIDI system-exclusive codes than the DC-16, and some LEDs may not turn on/off unless you have installed the updated firmware. Other than these minor visual shortcomings, there should be no other functional problems if you continue to use the original firmware.



The MM-16 switch assignments for Pro Tools

Fader Belt Functions

The fader belts can control one of the following modes:

- Volume
- Pan Left
- Pan Right
- Send 1
- Send 2
- Send 3
- Send 4
- Send 5
- Plug-In Controls

There are dedicated switches to assign the fader belts to each of the modes:

- Vol = makes continuous fader belts control volume
- Pan L (labeled *Prog* on MM-16) = makes continuous fader belts control pan left
- Pan R (labeled *Snap* on MM-16) = makes continuous fader belts control pan right
- Send 1 (labeled *Tempo* on MM-16) = makes continuous fader belts control Send #1 level
- Send 2 (labeled *1* on MM-16) = makes continuous fader belts control Send #2
- Send 3 (labeled *2* on MM-16) = makes continuous fader belts control Send #3
- Send 4 (labeled *3* on MM-16) = makes continuous fader belts control Send #4
- Send 5 (labeled *4* on MM-16) = makes continuous fader belts control Send #5
- FX switch (labeled *Send* on MM-16) = makes continuous fader belts edit Plug-In parameters

When a belt is moved, its assigned control is identified on the bottom row of the two-line LCD.

When the belts are controlling Send levels, the switches automatically control corresponding Send Mutes regardless of the current switch mode.

Fader Belt Switch Functions

The 16 switches that correspond to the belts can control any one of the following modes:

- Solo – Switches change solo state of tracks
- Mute – Switches change mute state of tracks

When the fader belt switches control mutes, any track that is currently muted as a result of other track(s) being soloed will have its associated switch LED flash. This shows you that the track's muting is "implied" due to other soloed track(s).

- Memory Location – recall/set Memory Locations
- Track Selection – choose which tracks are selected on-screen (for editing/deletion, etc.)
- Track Record-Arming – change record status of tracks
- Name – identify the control currently assigned to the corresponding belt in the LCD

When the belts are controlling Plug-In parameters, the fader belt switches automatically function in Name mode.

To cycle through the switch modes:

1. Press the Switch Mode switch (labeled *Send* on the MM-16).

2. Holding down the Option switch (5 on the MM-16) and pressing the Switch Mode switch (*Send* on the MM-16) cycles through the switch modes in reverse order.

When a switch is pressed, its assigned control is identified on the top row of the two-line LCD.

User Tip

If you wish to use Memory Locations mode, we recommend setting your Pro Tools Preferences so that memory locations are auto-named. This way when you create a memory location on-the-fly during playback or recording, you will not have to name and enter your location and thereby interrupt operations.

- Shift + Memory Location Switches = Extends the current selection when the current active mode for the fader belt switches is "Memory Locations." (Equivalent to Shift-clicking in Pro Tools.)
- Option + Memory Location Switches = Sets memory location points when the current active mode for the fader switches is "Memory Locations."

Additional Switch Functions

To swap banks or scroll channel strips:

- Bank Left (labeled *Left Arrow* on MM-16) = Bank swaps channel strips to the left
- Bank Right (labeled *Right Arrow* on MM-16) = Bank swaps channel strips to the right
- Option-Bank Left = Bank scrolls to the left by a single channel strip
- Option-Bank Right = Bank scrolls to the right by a single channel strip

- Shift-Bank Left (labeled *Left Arrow* on MM-16) = Zooms in horizontal view (time axis)
- Shift-Bank Right (labeled *Right Arrow* on MM-16) = Zooms out horizontal view (time axis)

To move through Plug-In control pages:

- Page Up (labeled *-1/NO* on MM-16) = Go to previous Plug-In control page
- Page Down (labeled *+1/YES* on MM-16) = Go to next Plug-In control page
- Option-Page Up (labeled *-1/NO* on MM-16) = Go to first Plug-In control page
- Option-Page Down (labeled *+1/YES* on MM-16) = Go to last Plug-In control page

"FX" must be the current mode to edit Plug-Ins.

To enable online status:

- STOP on the MM-16 (located in the three-switch group "START/CONT/STOP") = Toggles Online/ Offline status

- The Online switch on the DC-16 is the farthest right auxiliary button. The auxiliary buttons on the DC-16 are the row of eight switches on the top left of the unit.

To use Macintosh-styled modifier keys:

- *Opt* (labeled *5* on MM-16) = Option key; allows for editing of all switches of the same type

- *Shift* (labeled *6* on MM-16) = Shift key

- *Command* (labeled *7* on MM-16) = Command key; allows for fine resolution when in Scrub mode

- *Control* (labeled *8* on MM-16) = Control key; provides temporary "clutch" for groups

Not all of these modifier keys currently allow you to perform the same operations as their counterparts on the Macintosh keyboard. For example, the Command key does not currently allow fine control of Pro Tools on-screen levels from the MM-16/DC-16.

Transport Switches

The MM-16 and DC-16 have five standard transport control switches:

- Rewind
- Fast Forward
- Play
- Record
- Stop

Holding down the Control switch (labeled *8* on MM-16) and pressing the Record switch repeatedly cycles through the various recording modes (Loop Record, Destructive Record, and QuickPunch).

In addition, the following special transport modes can be enabled with modifier keys:

- Shift + Play = Half-speed Playback
- Shift + Rewind = Return-to-Zero
- Shift + FF = Go-to-End
- Shift + Stop = Aborts (cancels) recording pass
- Control (labeled *8* on MM-16) + Online (labeled STOP on the MM-16 in the three-switch group "START/ CONT/STOP") = Cycles thru master transport mode (Pro Tools, Serial Machine Control, or ADAT)

Transport Control of External Devices

The MM-16/DC-16 can be used to control devices other than Pro Tools such as the Alesis ADAT® (using the Digidesign ADAT I/O Interface), or serial (9-pin) machine control transports (using the MachineControl™ option for Pro Tools). If you have either of these installed, the following functions are available:

- Holding down the Control switch (labeled *8* on MM-16) and pressing the Online switch (labeled STOP on the MM-16 in the three-switch group "START/ CONT/STOP") will sequentially cycle through available transport master types (Pro Tools, Serial Machine, ADAT). In order to have *ADAT* show up as a choice, you must have a Digidesign ADAT Interface installed and enabled in the Peripherals dialog. Similarly, you must have the Digidesign MachineControl software option installed and enabled in the Peripherals dialog, in order to use MachineControl.

- When Serial Machine is transport master and the remote system is in Pause mode, the Play switch will blink and the Stop switch will light solid.

- When Serial Machine is transport master, and the remote system is cueing, the PLAY and Scrub switches will blink, and the Stop switch will light solid.

- The Record switch LED will always track the state of the device under control.

In order to use master transport control of Serial Machine Control or ADAT devices, you must have installed and configured the optional Digidesign ADAT Interface or Machine Control plug-in software.

Scrub and Shuttle Functions

Both scrub and shuttle are supported on the MM-16 and DC-16, using the scrub/shuttle wheel. Pro Tools will always scrub the topmost track or track pair with the current edit cursor position or selection.

If you are using a multi-track *edit group*, Pro Tools will scrub/shuttle the topmost track pair in the edit group (left-most in the Mix window). If you wish to scrub/shuttle other tracks in an edit group, you must first disable the group (or use the *Suspend Groups* command), and then position the edit cursor over the track or track pair you wish to scrub *before* entering Scrub/Shuttle modes on your controller.

While in Scrub or Shuttle mode with the MM-16/DC-16, all other screen activity is locked out, and the Edit Window status display area (lower-left corner of the window) will display *Scrub* or *Shuttle*.

- Scrub (labeled *Edit* on MM-16) = Enables Scrub mode
- Shuttle (labeled *Util* on MM-16) = Enables Shuttle mode
- Pressing the Transport's *Stop* button also allows you to leave either scrub or shuttle.

- Holding down the Command key (labeled *7* on the MM-16) while scrubbing = enables scrubbing at a fine resolution regardless of the current zoom level

- Holding down the Shift switch = allows new selection to be made while scrubbing/shuttle; end of selection is then made when releasing the Shift swtich
- Holding down the Option switch = begins scrubbing/ shuttling from the end of a selection

Creating Selections Using the Scrub/Shuttle Wheel

The MM-16/DC-16 offers a flexible and powerful way to create and modify on-screen selections by using the Scrub/Shuttle wheel:

To create selections using the Scrub/Shuttle wheel:

1. Press the Scrub switch (labeled *Edit* on MM-16) or Shuttle switch (labeled *Unit* on MM-16) on the MM-16/DC-16. The start position will be the current selection's start point, or current location of the I-beam cursor position if there is no selection. To scrub or shuttle from the selection end point, hold down the Option switch when pressing the Scrub switch (labeled Edit on MM-16) or Shuttle switch (labeled Unit on MM-16).

2. If you hold down the Shift switch *before* the Scrub switch (labeled *Edit* on MM-16) or Shuttle switch (labeled *Unit* on MM-16) is first pressed, or at the time the first wheel turn is made, your initial selection is kept. As you move the wheel, your selection will be expanded or trimmed, depending on the direction you are turning.

3. You can navigate to the front or back of your selection at any time (to change where you are scrubbing or shuttling) by pressing the Left/Right Arrow keys.

"Insertion Follows Scrub/Shuttle" Preference

Working with MM-16/DC-16's Scrub/Shuttle wheel will differ depending on whether you have enabled the "Insertion Follows Scrub/Shuttle" checkbox in Pro Tools' Preferences dialog:

To create selections using the Scrub/Shuttle wheel if "Insertion Follows Scrub/Shuttle" is enabled:

1. If when you first enter Scrub or Shuttle and turn the wheel, and you do not hold down the Shift switch, your initial selection will be lost.

2. As you turn the wheel, you will be moving the future location of the "I-beam" edit cursor as the audio plays.

3. If you hold down the Shift switch *before* the Scrub switch (labeled *Edit* on MM-16) or Shuttle switch (labeled *Unit* on MM-16) is first pressed, or at the time the first wheel turn is made, your initial selection is kept. As you move the wheel, your selection will expand, or will be trimmed (depending on the direction you are turning).

To create selections using the Scrub/Shuttle wheel if "Insertion Follows Scrub/Shuttle" is NOT enabled:

1. If when you first enter Scrub or Shuttle and turn the wheel, and you do *not* hold down the Shift switch, your initial selection is retained, allowing you to "roam" outside of the selection boundaries.

2. If you hold down the Shift switch, your original selection will be lost, and a new one will be created as you turn the wheel. Your new selection starts wherever you first hold down the Shift switch.

3. If you release the Shift switch, the scrub/shuttle position will roam free of the selection, and scrubbing/shuttling will no longer trim its length.

4. Holding down the Shift additional times will allow the current selection to be trimmed as needed.

User Tip

Using the Scrub/Shuttle wheel can be a powerful and fast way to define selections, modify them, and capture region areas as memory locations. This can especially be helpful when working with low-level or continuous material (such as classical music editing or post production dialog editing) whose on-screen waveforms may provide too little visual information to work with.

Here are basic tips for working with the Scrub/Shuttle wheel:

- If you want to keep your initial selection and simply trim it, remember to hold the Shift switchdown when you enter scrub/shuttle or when you first move the wheel.
- If you aren't holding the Shift switch down when entering scrub/shuttle or moving the wheel, then the *first* wheel move with the Shift key held down will redefine the selection at the current scrub/shuttle position.
- Subsequent toggles of the Shift switch simply enable or disable selection trimming.
- At any time during scrubbing/shuttling you can press the Left or Right Arrow to move the current scrub position to the selection start/end.
- You can freely move between scrub and shuttle modes. The current scrub/shuttle position is retained though the transition between modes.
- If you enter scrub or shuttle but don't move the wheel or mouse, you can safely exit scrub/shuttle without affecting the selection, even if "Insertion Follows Scrub" is enabled.

Here's an example of how to use a combination of the various scrub/shuttle functions to define a selection:

1. Press the Shuttle switch (labeled *Unit* on MM-16) to enter shuttle mode.
2. Shuttle along the timeline. When you get to roughly the selection in-point, press and hold down the Shift switch.
3. Continue shuttling down the timeline. When you get to roughly the out-point, release the Shift key. Your "rough selection" is now defined.
4. Press the Scrub switch (labeled *Edit* on MM-16) to enter scrub mode. (You will be scrubbing at the last shuttle position.)
5. Press the Left Arrow quadrant key to instantaneously move the scrub position to the selection start.
6. Holding the Shift switch down (to retain your selection), scrub your selection in-point until you have exactly what you want.
7. Press the Right Arrow quadrant key to instantaneously move your scrub out-point to the selection end.
8. Holding down the Shift switch down (to retain your selection), scrub your out-point until you have exactly found your desired out-point.

User Tip

This function can be extremely useful in post production dialog editing (or any other application that involves defining a lot of separate regions using scrub/shuttle):

1. Define a selection using any of the various techniques.
2. Once you have your desired selection defined, press the down arrow to capture a memory location point and free up the cursor.
3. Now, start the selection process "downstream" from your last selection, defining and capturing selections as you go.

Resetting the Penny & Giles MM-16 or DC-16

If power is interrupted, or if for some other reason your MM-16/DC-16 needs to be reset (powered *off* and *on* again), you should follow these steps:

To reset the MM-16/DC-16 with Pro Tools:

1. Power down the controller.

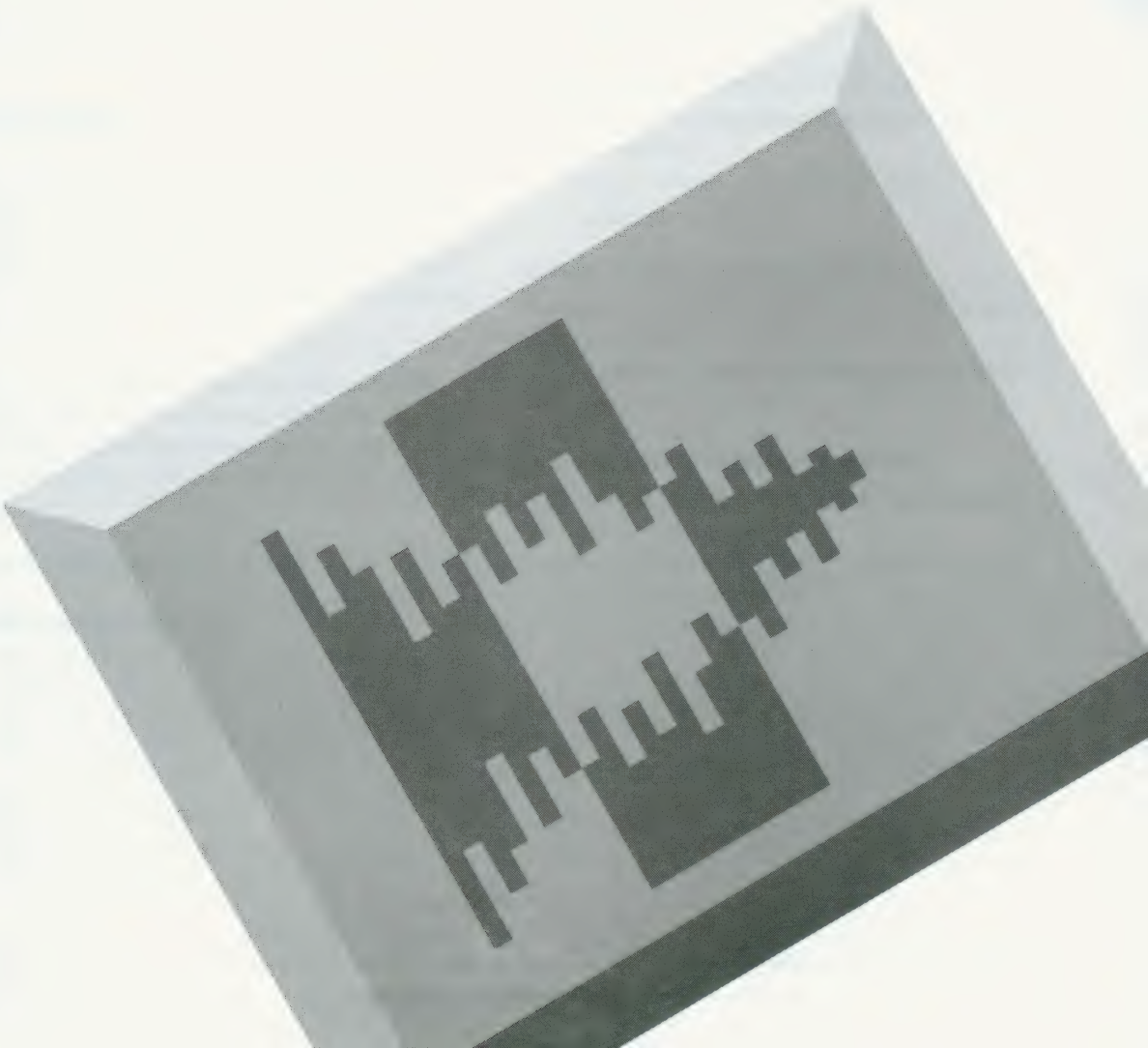
2. Disable the MM-16/DC-16 in the Peripherals dialog, and close the dialog. This is necessary because when you have the controller enabled, Pro Tools is constantly sending out MIDI system-exclusive status information to the controller. Subsequently powering up the controller while this information is being sent will cause the overrun the controller's input buffer, creating an error condition.

3. Then power up the controller.

4. Reenable the controller in the *Peripherals* dialog.

This concludes the chapter on the Penny & Giles MM-16 or DC-16 controller. You should now be able to use your MM-16 or DC-16 to assist in performing basic Pro Tools operations such as mixing, editing, and Plug-In editing. Refer to Appendix B of this guide for control page tables for various Digidesign Plug-Ins.

Peavey PC-1600
MIDI Controller



Peavey PC-1600 MIDI Controller

Introduction

The Peavey PC-1600 is a fully programmable MIDI controller with 16 channel faders and 16 switches.

Although the PC-1600 has a data wheel, it currently can only send out controller values corresponding to one of the 16 faders. *Therefore, Scrub and Shuttle functions are NOT supported on this controller.*

Preset Modes

For your convenience, there are seven, custom preset modes for the PC-1600 to control Pro Tools. These presets are automatically downloaded to the controller when enabled in the Peripherals dialog, overwriting any existing presets stored there. The LCD screen displays the name of the current preset.

Each preset defines specific functionality for each of 32 controls (16 faders and 16 switches). While there are 16 faders, the controller actually operates as a device with eight channel strips and with banks comprised of eight channels.

The seven preset modes for the PC-1600:

1. Eight Volumes + Eight Pans

- Faders #1-8 control volume for the eight tracks in the current bank
- Faders #9-16 control the pans for the eight tracks in the current bank

2. Sixteen Plug-In Controls

- Faders #1-16 control the 16 Plug-In controls in the currently active Plug-In parameter page

3. Eight Volume + Eight Send #1 Levels

- Faders #1-8 control volume for the eight tracks in the current bank
- Faders #9-16 control the send #1 levels for the eight tracks in the current bank

4. Eight Volume + Eight Send #2 Levels

- Faders #1-8 control volume for the eight tracks in the current bank
- Faders #9-16 control Send #2 levels for the eight tracks in the current bank

5. Eight Volume + Eight Send #3 Levels

- Faders #1-8 control volume for the eight tracks in the current bank
- Faders #9-16 control Send #3 levels for the eight tracks in the current bank

6. Eight Volume + Eight Send #4 Levels

- Faders #1-8 control volume for the eight tracks in the current bank
- Faders #9-16 control Send #4 levels for the eight tracks in the current bank

7. Eight Volume + Eight Send #5 Levels

- Faders #1-8 control volume for the eight tracks in the current bank
- Faders #9-16 control Send #5 levels for the eight tracks in the current bank

Function Switches

There are 16 switches positioned directly below each fader. Switches #1-8 control different functions depending on the active preset. However, switches #9-16 have the same functionality for all presets.

Switch Mode Determines Functionality for Switches #1-8

In all preset modes except "16 Plug-In Controls" (Preset #2), switches #1-8 control the function defined by one of the following switch modes:

- Mute — Switches change mute state of tracks
- Solo — Switches change solo state of tracks
- Track Record-Arming — Switches change record status of tracks
- Selection — Switches selects tracks for editing, deletion, and so on
- Memory Location — Switches recall/set Memory Locations

To cycle forward through the different switch modes:

1. Press Change Mode switch (Switch 16).

2. Alternatively, holding down the Option switch (Switch 9) while pressing the Change Mode switch (Switch 16) cycles through the switch modes in reverse order.

Note: Since there are no switch LEDs on the PC-1600, there is no indication which switch mode is currently active.

"Sixteen Plug-In Controls" Preset Functionality for Switches #1-8

In the "Sixteen Plug-In Controls" preset (Preset #2), the faders control Plug-In parameters, while the first eight switches control the following transport functions:

- Switch 1 = Rewind
- Switch 2 = Fast Forward
- Switch 3 = Stop
- Switch 4 = Play
- Switch 5 = Record

User Tip

Holding down the Control switch (Switch 11) and pressing the Record switch repeatedly cycles through the various recording modes (Loop Record, Destructive Record, and QuickPunch).

- Switch 6 = toggles Online/Offline status
- Switch 7 = (Not Used)
- Switch 8 = (Not Used)

- Shift (Switch 10)-Switch 1 = Return-To-Zero
- Shift (Switch 10)-Switch 2 = Go To-End
- Shift (Switch 10)-Switch 3 = Abort Record
- Shift (Switch 10)-Switch 4 = Half-Speed Playback

Functionality for Switches #9-16

Switches #9-16 have the same functionality for all seven presets:

- Switch 9 = Option
- Switch 10 = Shift
- Switch 11 = Control

- Switch 16 = Cycles through the switch modes (Mute, Solo, Track Record-Arming, Selection, and Memory Location)

When the *Mix* window is the current active window:

- Switch 12 = Bank swaps eight channel strips to the left
- Switch 13 = Bank swaps eight channel strips to the right
- Shift (Switch 10) + Switch 12 = Bank scrolls to the left by a single channel strip
- Shift (Switch 10) + Switch 13 = Bank scrolls to the right by a single channel strip

- Switch 14 = go to prior Plug-In parameter page
- Switch 15 = go to next Plug-In parameter page
- Shift (Switch 10) + Switch 14 = Go to top Plug-In parameter page
- Shift (Switch 10) + Switch 15 = Go to bottom Plug-In parameter page

When the *Edit* window is the current active window:

- Shift (Switch 10) + Switch 12 = Zooms out horizontal view (time axis)
- Shift (Switch 10) + Switch 13 = Zooms in horizontal view (time axis)
- Shift (Switch 10) + Switch 14 = Zooms in vertical view (amplitude axis)
- Shift (Switch 10) + Switch 15 = Zooms out vertical view (amplitude axis)

Transport Control of External Devices

The PC-1600 can be used to control devices other than Pro Tools such as the Alesis ADAT® (using the Digidesign ADAT I/O Interface), or serial (9-pin) machine control transports (using the MachineControl™ option for Pro Tools). If you have either of these installed, the following functions are available:

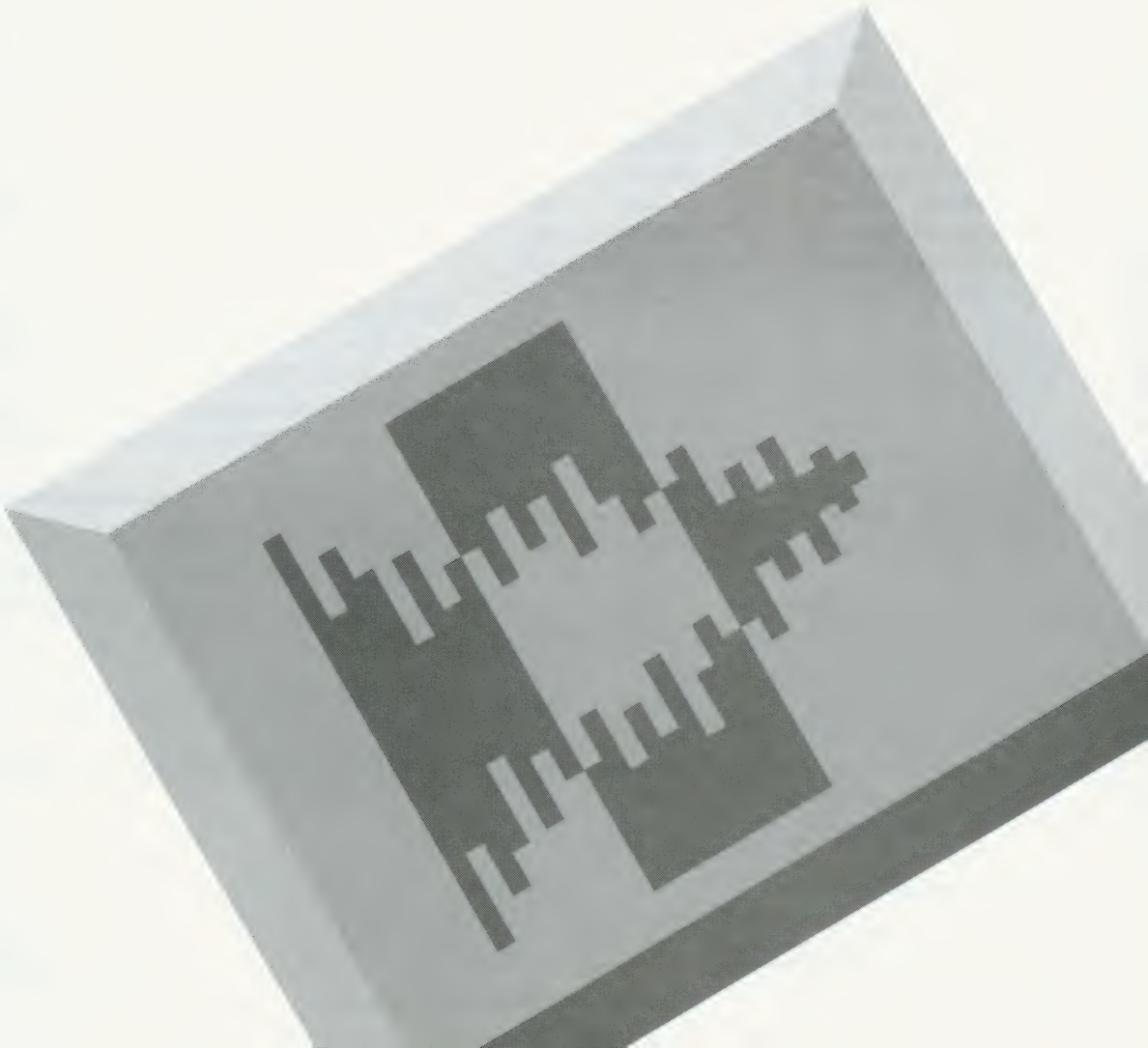
- Holding down Switch 11 (Control) and pressing Switch 6 (Online) will sequentially cycle through available transport master types (Pro Tools, Serial Machine, ADAT). In order to have *ADAT* show up as a choice, you must have a Digidesign ADAT Interface installed and enabled in the Peripherals dialog. Similarly, you must have the Digidesign MachineControl software option installed and enabled in the Peripherals dialog, in order to use MachineControl.

- The RECORD switch LED will always track the state of the device under control.

In order to use master transport control of Serial Machine Control or ADAT devices, you must have installed and configured the optional Digidesign ADAT Interface or Machine Control plug-in software.

This concludes the chapter on working with the Peavey PC-1600 controller. You should now be able to use your PC-1600 to assist in performing basic Pro Tools operations such as mixing, editing, and Plug-In editing. Refer to Appendix B of this guide for control page tables for various Digidesign Plug-Ins.

Appendix A
Using Other MIDI Controllers



Appendix A
Using Other MIDI Controllers

If you do not have any of the currently supported MIDI controllers, you can a use a third-party controller such as the JL Cooper FaderMaster™ and program its controls to function like a JL Cooper CS-10, provided that the controller is capable of having its MIDI protocol reprogrammed. This allows you to use any third-party MIDI controller that is not yet explicitly supported by a MIDI Controller Personality file. This also allows you to access Pro Tools via a set MIDI protocol and adopt the CS-10's functional personality (covered earlier in this manual).

If you are unsure whether your controller is capable of reprogramming its controls, check its documentation, or contact the dealer, distributor or manufacturer of your controller for more information.

The following information assumes you have a familiarity with MIDI protocol, particularly with MIDI System Exclusive (SysEx) messages. Check the documentation for your controller to learn about reprogramming the MIDI protocol for communications to and from your controller.

Fader and Switch Data

The CS-10 uses standard MIDI protocol, and all of its controller commands are on MIDI channel 16. These messages are all of the form:

BFh cc vv

where cc=switch or wheel number, and vv=value.

The following table gives values (vv) for each fader or switch.

cc	Name	vv
00h	Mute switch 1	00=release, 7Fh=depressed
01h-07h	Mute switches 2-8	00=release, 7Fh=depressed
08h	Mode switch	00=release, 7Fh=depressed
09h	Shift switch	00=release, 7Fh=depressed
0Ah	F1 switch	00=release, 7Fh=depressed
0Bh	F2 switch	00=release, 7Fh=depressed
0Ch	F3 switch	00=release, 7Fh=depressed
0Dh	F4 switch	00=release, 7Fh=depressed
0Eh	F5 switch	00=release, 7Fh=depressed
0Fh	F6 switch	00=release, 7Fh=depressed
10h	F7 switch	00=release, 7Fh=depressed
11h	F8 switch	00=release, 7Fh=depressed
12h	F9 switch	00=release, 7Fh=depressed
13h	REW switch	00=release, 7Fh=depressed
14h	FF switch	00=release, 7Fh=depressed
15h	Stop switch	00=release, 7Fh=depressed
16h	Play switch	00=release, 7Fh=depressed
17h	Record switch	00=release, 7Fh=depressed
18h	Left Wheel switch	00=release, 7Fh=depressed
19h	Right Wheel switch	00=release, 7Fh=depressed
1Ah	Up cursor switch	00=release, 7Fh=depressed
1Bh	Down cursor switch	00=release, 7Fh=depressed
1Ch	Left cursor switch	00=release, 7Fh=depressed
1Dh	Right cursor switch	00=release, 7Fh=depressed
1Eh	Footswitch	00=release, 7Fh=depressed
40h	Fader 1	Range 0 to 7Fh
41h-47h	Faders 2-8	Range 0 to 7Fh
48h	Boost/Cut	Range 0 to 7Fh
49h	Frequency	Range 0 to 7Fh
4Ah	Bandwidth	Range 0 to 7Fh
4Bh	Send 1	Range 0 to 7Fh
4Ch	Send 2	Range 0 to 7Fh
4Dh	Pan	Range 0 to 7Fh
60h	Wheel	2s compliment using 7 bits of data

Wheel Data

Wheel data is in the form of "2's complement" with the 6th bit as the sign bit. Positive numbers are sent for clockwise rotation. These numbers represent the wheel counts accumulated since the last transmission (i.e. relative position count), similarly to what a computer mouse transmits. The resolution is approximately 180 counts per revolution, and transmissions are sent at about 10 milliseconds intervals when the wheel is being turned.

LED Data

All messages from the computer to the controller are transmitted using SysEx commands as follows:

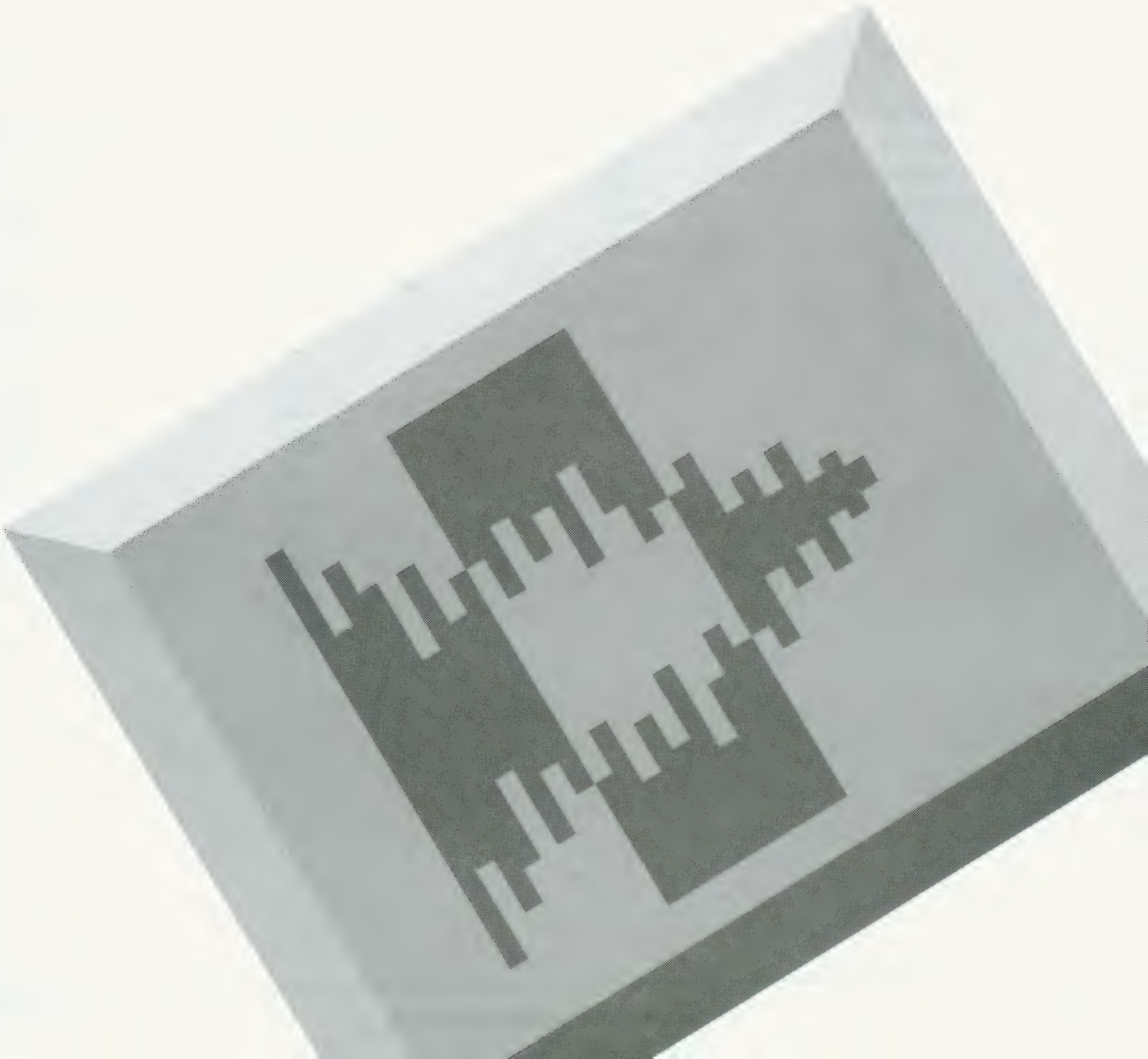
F0h 15h 15h 00h cc vv F7h

where cc=LED number, and vv=value.

cc	Name	vv
00h	Mute LED 1	00=off, 7Fh=on
01h-07h	Mute LEDs 2-8	00=off, 7Fh=on
08h	Select Mode LED	00=off, 7Fh=on
09h	Locate Mode LED	00=off, 7Fh=on
0Ah	Mute Mode LED	00=off, 7Fh=on
0Bh	Solo Mode LED	00=off, 7Fh=on
0Ch	Down Null LED	00=off, 7Fh=on
0Dh	Up Null LED	00=off, 7Fh=on
0Eh	Left Wheel LED	00=off, 7Fh=on
0Fh	Right Wheel LED	00=off, 7Fh=on
10h	1s 7-Segment Digit	(see below)
11h	10s 7-Segment Digit	(see below)
12h	Record LED	00=off, 7Fh=on
13h	Decimal point to right of 10s digit	00=off, 7Fh=on
14h	Decimal point to right of 1s digit	00=off, 7Fh=on

For the 7-segment LEDs, Bit 0= segment a, Bit 1= segment b, and so on. In each case, a set bit turns the segment on.

Appendix B
Plug-In Control Pages
(for TDM Systems Only)



Appendix B
Plug-In Control Pages
(for TDM Systems Only)

This appendix provides tables which map out the editing pages for various Digidesign Plug-Ins. You can use these tables as a guide to what controller fader or knob will control which on-screen Plug-In control on each parameter page.

The first control on a page or "page break" is marked in **boldface** type. Controls that are unmapped on a given page are marked as *Blank*—in other words, they will control nothing.

BNR

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**Blank**	**NR Amount**
NR Amount	NR Amount	Blank	Response
Response	Response	Blank	Release
Release	Release	Blank	Smoothing
Smoothing	Smoothing	**Hi Shelf Enable**	**Freq**
Blank	**Hi Shelf Enable**	Blank	Gain
Hi Shelf Enable	Freq	Blank	Blank
Freq	Gain	Blank	Blank
Gain	Blank		
Blank	Blank		
Blank	Blank		
Blank	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		

D-Verb

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**Blank**	**Input Level**
Input Level	Input Level	Blank	Wet/Dry
Wet/Dry	Wet/Dry	Blank	Algorithm
Algorithm	Algorithm	Blank	Size
Size	Size	**Blank**	**Diffusion**
Blank	Diffusion	Blank	Decay
Diffusion	Decay	Blank	Pre Delay
Decay	Pre Delay	Blank	Blank
Pre Delay	RT HF Cut	**Blank**	**RtHi**
RT HF Cut	LP Filter	Blank	LPF
LP Filter	Blank	Blank	Blank
Blank	Blank	Blank	Blank
	Blank		
	Blank		
	Blank		
	Blank		

DPP-1 Mono

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**Inv**	**Inp**
Input Level	Input Level	Blank	Mix
Phase	Phase	Blank	Dly
Mix	Mix	Blank	FB
Delay	Delay	**-8va**	**Crse**
Feedback	Feedback	+8va	Fine
Octave -	Octave -	Blank	Rtio
Octave +	Octave +	Blank	Xfad
Coarse	Coarse	**Blank**	**Min**
Fine	Fine	Blank	Max
Ratio	Ratio	Blank	
Blank	X-fade	Blank	
X-fade	Min Pitch		
Min Pitch	Max Pitch		
Max Pitch	Blank		
Blank	Blank		
Blank			
Blank			

DPP-1 Sterao

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**InvL**	**InpL**
Blank	Blank	InvR	InpR
Input Level L	Input Level L	Blank	MixL
Phase L	Input Level R	Blank	MixR
Input Level R	Phase L	**Blank**	**DlyL**
Phase R	Phase R	Blank	DlyR
Mix L	Mix L	Blank	Fb L
Delay L	Mix R	Blank	Fb R
Feedback L	Delay L	**-8vL**	**CrsL**
Mix R	Delay R	-8vR	CrsR
Delay R	Feedback L	+8vL	FinL
Feedback R	Feedback R	+8vR	FinR
Octave - L	Octave - L	**Blank**	**RatL**
Octave - R	Octave - R	Blank	RatR
Octave + L	Octave + L	Blank	XfdL
Octave + R	Octave + R	Blank	XfdR
Blank	**Coarse L**	**Blank**	**Min**
Blank	Coarse R	Blank	Max
Coarse L	Fine L	Blank	Blank
Fine L	Fine R	Blank	Blank
Ratio L	Ratio L		
Coarse R	Ratio R		
Fine R	X-fade L		
Ratio R	X-fade R		
X-fade L	Min Pitch		
Min Pitch	Max Pitch		
X-fade R	Blank		
Max Pitch	Blank		
Blank	Blank		
Blank	Blank		
	Blank		
	Blank		

A Note about the Digidesign Dynamics Plug-In

The Digidesign Dynamics Plug-In can change its attributes, depending upon which dynamics "module" is currently active (compressor, downward expander, gate, etc.). Therefore, some controls will be active on some pages and inactive on others.

Dynamics MONO (All Flavors)

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**Inv**	**Gain**
Gain	Gain	Blank	Func
Phase	Phase	Blank	Thrs
Function	Function	Blank	Rtio
Blank	Threshold	**Blank**	**Atk**
Blank	Ratio	Blank	Hold
Threshold	Attack	Blank	Rel
Ratio	Hold	Blank	Rnge
Attack	Release		
Hold	Range		
Release	Blank		
Range	Blank		
	Blank		
	Blank		
	Blank		
	Blank		

Dynamics STEREO (All Flavors)

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**InvL**	**Gain**
Gain	Gain	InvR	Func
Phase L	Phase L	Blank	Link
Phase R	Phase R	Blank	Thrs
Function	Function	**Blank**	**Rtio**
Linking	Linking	Blank	Atk
Threshold	Threshold	Blank	Hold
Ratio	Ratio	Blank	Rel
Attack	Attack	**Blank**	**Rnge**
Hold	Hold	Blank	Blank
Release	Release	Blank	Blank
Range	Blank	Blank	Blank
	Blank		
	Blank		
	Blank		
	Blank		

1-Band EQ MONO

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
MasterBypass	**MasterBypass**	**Inv**	**Type**
Input	Input	Blank	Freq
Phase L	Phase L	Blank	Gain
Type	Phase R	Blank	Q
Freq	Type	**Blank**	**Inpt**
Gain	Freq	Blank	Blank
Q	Gain	Blank	Blank
Blank	Q	Blank	Blank
Blank	Blank		
Blank	Blank		
Blank	Blank		
Blank	Blank		
	Blank		
	Blank		
	Blank		
	Blank		

1-Band EQ Stereo

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
MasterBypass	**MasterBypass**	**InvL**	**Type**
Input	Input	InvR	Freq
Phase L	Phase L	Blank	Gain
Phase R	Phase R	Blank	Q
Blank	Type	**Blank**	**Inpt**
Blank	Freq	Blank	Blank
Type	Gain	Blank	Blank
Freq	Width	Blank	Blank
Gain	Blank		
Width	Blank		
Blank	Blank		
Blank	Blank		
	Blank		
	Blank		
	Blank		
	Blank		

4-band EQ mono

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Input**	**Blank**	**Freq**
Input Level	Phase	LoSh	Gain
Phase	Hi Shelf In/Out	Blank	Freq
Blank	Hi Shelf Frequency	HiSh	Gain
Blank	Hi Shelf Gain	**Inv**	**Inpt**
Blank	Hi Mid In/Out	Blank	Q
Hi Shelf In/Out	Hi Mid Frequency	Blank	Freq
Hi Shelf Frequency	Hi Mid Gain	HMF	Gain
Hi Shelf Gain	Hi Mid Q	**Inv (Duplicate)**	**Inpt (Duplicate)**
Blank	Lo Mid In/Out	Blank	Q
Blank	Lo Mid Frequency	Blank	Freq
Blank	Lo Mid Gain	LMF	Gain
Hi Mid In/Out	Lo Mid Q		
Hi Mid Frequency	Lo Shelf In/Out		
Hi Mid Gain	Lo Shelf Frequency		
Hi Mid Q	Lo Shelf Gain		
Blank			
Blank			
Lo Mid In/Out			
Lo Mid Frequency			
Lo Mid Gain			
Lo Mid Q			
Blank			
Blank			
Lo Shelf Bypass			
Lo Shelf Frequency			
Lo Shelf Gain			
Blank			
Blank			
Blank			

4-band EQ stereo

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**Blank**	**Freq**
Input Level	Input	LoSh	Gain
Phase Invert L	Phase Invert L	Blank	Freq
Phase Invert R	Phase Invert R	HiSh	Gain
Blank	Hi Shelf In/Out	**InvL**	**Inpt**
Blank	Hi Shelf Frequency	InvR	Q
Hi Shelf In/Out	Hi Shelf Gain	Blank	Freq
Hi Shelf Frequency	Hi Mid In/Out	HMF	Gain
Hi Shelf Gain	Hi Mid Frequency	**InvL**	**Inpt (Duplicate)**
Blank	Hi Mid Gain	InvR	Q
Blank	Hi Mid Q	Blank	Freq
Blank	Lo Mid In/Out	LMF	Gain
Hi Mid In/Out	Lo Mid Frequency		
Hi Mid Frequency	Lo Mid Gain		
Hi Mid Gain	Lo Mid Q		
Hi Mid Q	Blank		
Blank	Lo Shelf In/Out		
Blank	Lo Shelf Frequency		
Lo Mid In/Out	Lo Shelf Gain		
Lo Mid Frequency			
Lo Mid Gain			
Lo Mid Q			
Blank			
Blank			
Lo Shelf Bypass			
Lo Shelf Frequency			
Lo Shelf Gain			
Blank			
Blank			
Blank			

Focusrite d2 MONO 6 band (All Flavors)

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**Blank**	**Freq**
Hi Pass/Frequency	Hi Pass/Frequency	LoSh	Gain
Hi Pass/Bypass	Hi Pass/Bypass	Blank	Freq
Low Shelf/Frequency	Low Shelf/Frequency	HiSh	Gain
Low Shelf/Gain	Low Shelf/Gain	**Inv**	**Inpt**
Low Shelf/Bypass	Low Shelf/Bypass	Blank	Q
LMF/Frequency	LMF/Frequency	Blank	Freq
LMF/Gain	LMF/Gain	LMF	Gain
LMF/Q	LMF/Q	**Inv (Duplicate)**	**Inpt (Duplicate)**
LMF/Bypass	LMF/Bypass	Blank	Q
Input Gain (Duplicate)	HMF/Frequency	Blank	Freq
Output Gain (Duplicate)	HMF/Gain	HMF	Gain
HMF/Frequency	HMF/Q	**HPF**	**Freq**
HMF/Gain	HMF/Bypass	LPF	Freq
HMF/Q	Blank	Inv (duplicate)	Inpt
HMF/Bypass	Blank	Blank	Out
Input Gain (Duplicate)	**Hi Shelf/Frequency**		
Output Gain (Duplicate)	Hi Shelf/Gain		
Hi Shelf/Frequency	Hi Shelf/Bypass		
Hi Shelf/Gain	Lo Pass/Frequency		
Hi Shelf/Bypass	Lo Pass/Bypass		
Lo Pass/Frequency	Input Gain		
Lo Pass/Bypass	Output Gain		
Input Gain (Duplicate)	Blank		
Input Gain (Duplicate)	Blank		
Output Gain (Duplicate)	Blank		
Blank	Blank		
Blank	Blank		
Blank	Blank		
Blank	Blank		
	Blank		
	Blank		
	Blank		

Focusrite d2 Stereo 6 band (All Flavors)

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**Blank**	**FrqL**
Left HP/Frequency	Left HP/Frequency	LoSh	Gn L
Left HP/Bypass	Left HP/Bypass	Blank	FrqL
Left LP/Frequency	Left LP/Frequency	HiSh	Gn L
Left LP/Bypass	Left LP/Bypass	**InvL**	**In L**
Blank	Left Low Shelf/Frequency	Blank	Q L
Left Low Shelf/Frequency	Left Low Shelf/Gain	Blank	FrqL
Left Low Shelf/Gain	Left Low Shelf/Bypass	LMF	Gn L
Left Low Shelf/Bypass	Left LMF/Frequency	**InvL (Duplicate)**	**In L**
Left Input Gain	Left LMF/Gain	Blank	Q L
Left Output Gain	Left LMF/Q	Blank	FrqL
Blank	Left LMF/Bypass	HMF	Gn L
Left LMF/Frequency	Left HMF/Frequency	**HPF**	**FrqL**
Left LMF/Gain	Left HMF/Gain	LPF	FrqL
Left LMF/Q	Left HMF/Q	Blank	Blank
Left LMF/Bypass	Left HMF/Bypass	Blank	Blank
Left Input Gain (Duplicate)	**Left Hi Shelf/Frequency**	**LInv (Duplicate)**	**In L**
Blank	Left Hi Shelf/Gain	RInv	In R
Left HMF/Frequency	Left Hi Shelf/Bypass	L/R	OutL
Left HMF/Gain	Left Input Gain	Link	OutR
Left HMF/Q	Left Output Gain	**Blank**	**FrqR**
Left HMF/Bypass	Right Input Gain	LoSh (dupe)	Gn R
Left Input Gain (Duplicate)	Right Output Gain	Blank	FrqR
Blank	Left/Right	HiSh (dupe)	Gn R
Left Hi Shelf/Frequency	Link	**RInv**	**In R**
Left Hi Shelf/Gain	Right HP/Frequency	Blank	Q R
Left Hi Shelf/Bypass	Right HP/Bypass	Blank	FrqR
Blank	Right LP/Frequency	LMF (dupe)	Gn R
Blank	Right LP/Bypass	**RInv (Duplicate)**	**In R (Duplicate)**
Blank	Right Low Shelf/Frequency	Blank	Q R
Left Input Gain (Duplicate)	Right Low Shelf/Gain	Blank	FrqR
Left Output Gain (Duplicate)	Right Low Shelf/Bypass	HMF (dupe)	Gn R
Right Input Gain	**Right LMF/Frequency**	**HPF (Duplicate)**	**FrqR**
Right Output Gain	Right LMF/Gain	LPF (dupe)	FrqR
Left/Right	Right LMF/Q	Blank	Blank
Link	Right LMF/Bypass	Blank	Blank
Blank	Right HMF/Frequency	**LInv (Duplicate)**	**In L**
Right HP/Frequency	Right HMF/Gain	RInv	In R
Right HP/Bypass	Right HMF/Q	L/R	OutL
Right LP/Frequency	Right HMF/Bypass	Link	OutR
Right LP/Bypass	Right Hi Shelf/Frequency		
Blank	Right Hi Shelf/Gain		

Focusrite d2 Stereo 6 band (All Flavors) con't

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Right Low Shelf/Frequency	Right Hi Shelf/Bypass		
Right Low Shelf/Gain	Right Input Gain (Duplicate)		
Right Low Shelf/Bypass	Right Output Gain (Duplicate)		
Right Input Gain	Blank		
Right Output Gain	Blank		
Blank	Blank		
Right LMF/Frequency			
Right LMF/Gain			
Right LMF/Q			
Right LMF/Bypass			
Right Input Gain (Duplicate)			
Blank			
Right HMF/Frequency			
Right HMF/Gain			
Right HMF/Q			
Right HMF/Bypass			
Right Input Gain (Duplicate)			
Blank			
Right Hi Shelf/Frequency			
Right Hi Shelf/Gain			
Right Hi Shelf/Bypass			
Right Input Gain (Duplicate)			
Right Output Gain (Duplicate)			
Blank			

Focusrite d3 MONO

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**Comp**	**Thrs**
Ratio	Ratio	Blank	Rtio
Threshold	Threshold	Blank	Atk
Attack	Attack	Auto	Rel
Release	Release	**Key**	**Inpt**
Compressor Enable	Compressor Enable	KeyL	Out
Auto Release	Auto Release	Lim	LmTh
Limiter Threshold	Limiter Threshold	Blank	Blank
Limiter Enable	Limiter Enable		
Input Gain	Input Gain		
Output Gain	Output Gain		
Key Switch	Key Switch		
Key Listen	Key Listen		
Blank	Blank		
Blank	Blank		
Blank	Blank		
Blank			
Blank			

Focusrite d3 STEREO

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	Master Bypass	Comp	Thrs
Ratio	Ratio	Blank	Rtio
Threshold	Threshold	Blank	Atk
Attack	Attack	Auto	Rel
Release	Release	**Key**	**In L**
Compressor Enable	Compressor Enable	KeyL	In R
Auto Release	Auto Release		Out
Limiter Threshold	Limiter Threshold	Lim	LmTh
Limiter Enable	Limiter Enable		
Left Input Gain	Left Input Gain		
Right Input Gain	Right Input Gain		
Output Gain	Output		
Key Switch	Key Switch		
Key Listen	Key Listen		
Blank	Blank		
Blank	Blank		

Hum Removal

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**Blank**	**CtrF**
Center Freq	Center Freq	Blank	Cut
Cut Level	Cut Level	Blank	Thrs
Threshold	Threshold	Blank	Atk
Attack Time	Attack Time	**Blank**	**Rel**
Release Time	Release Time	Blank	Blank
	Blank	Blank	Blank
	Blank	Blank	Blank
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		

Delay MONO

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**Inv**	**Inpt**
Input Level	Input Level	Blank	Mix
Phase Invert	Phase Invert	Blank	LPF
Mix	Mix	Blank	Dly
LPF	LPF	**Blank**	**Dep**
Delay	Delay	Blank	Rate
Depth	Depth	Blank	FB
Rate	Rate	Blank	Blank
Feedback	Feedback		
Blank	Blank		
Blank	Blank		
Blank	Blank		
	Blank		
	Blank		
	Blank		
	Blank		

Delay STEREO

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Left Input Level**	**InvL**	**In L**
Blank	Right Input Level	InvR	In R
Left Input Level	Phase L	Blank	MixL
Phase L	Phase R	Blank	MixR
Right Input Level	Mix Left	**Blank**	**LPFL**
Phase R	Mix Right	Blank	LPFR
Mix Left	LPF Left	Blank	DlyL
Mix Right	LPF Right	Blank	DlyR
LPF Left	Delay Left	**Blank**	**DepL**
Delay Left	Delay Right	Blank	DepR
LPF Right	Depth Left	Blank	RatL
Delay Right	Depth Right	Blank	RatR
Depth Left	Rate Left	**Blank**	**FB L**
Depth Right	Rate Right	Blank	FB R
Rate Left	Feedback L	Blank	Blank
Rate Right	Feedback R	Blank	Blank
Feedback L	**Master Bypass**		
Feedback R			

Procrastinator MONO

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**Inv**	**Inpt**
Input	Input	Blank	Mix
Phase	Phase	Blank	Dly
Mix	Mix	FB/P	FB
Delay	Delay	**LP/P**	**LPF**
Feedback	Feedback	Blank	BPM
LPF	LPF	Blank	Note
Feedback Pre/Post	Feedback Pre/Post	Blank	Grve
LPF Pre/Post	LPF Pre/Post		
Tempo	Tempo		
Note	Note		
Groove	Groove		
	Blank		
	Blank		
	Blank		
	Blank		

TimeAdjuster MONO

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**Inv**	**Gain**
Phase	Phase	Blank	Dly
Gain	Gain	Blank	Blank
Delay	Delay	Blank	Blank
Blank	Blank		
Blank	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		

TimeAdjuster STEREO

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Left Phase	**Master Bypass**	**InvL**	**Gn L**
Left Gain	Left Phase	Blank	DlyL
Left Delay	Left Gain	InvR	Gn R
Right Phase	Left Delay	Blank	DlyR
Right Gain	Right Phase		
Right Delay	Right Gain		
Master Bypass	Right Delay		
Blank	Blank		
Blank	Blank		
Blank	Blank		
Blank	Blank		
Blank	Blank		
	Blank		
	Blank		
	Blank		
	Blank		

Dither

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
MasterBypass	**MasterBypass**	**Nois**	**BitR**
Bit Resolution	Bit Resolution	Blank	Blank
Noise Shape	Noise Shape	Blank	Blank
Blank	Blank	Blank	Blank
Blank	Blank		
Blank	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		

Lo-Fi

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**Blank**	**SR**
Sample Rate	Sample Rate	Blank	Ant
Anti-Alias	Anti-Alias	Blank	Siz
Sample Size	Sample Size	Blank	Qnt
Quantization	Quantization	**Blank**	**Noiz**
Noise	Noise	Blank	Dst
Distortion	Distortion	Blank	Sat
Saturation	Saturation	Blank	Blank
Blank	Blank		
Blank	Blank		
Blank	Blank		
Blank	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		

Recti-Fi

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
MasterBypass	**MasterBypass**	**Blank**	**PreF**
Pre-filter	Pre-filter	Blank	Rect
Rectification	Rectification	Blank	Gn
Gain	Gain	Blank	PstF
Post-filter	Post-filter	**Blank**	**Mix**
Mix	Mix	Blank	Blank
	Blank	Blank	Blank
	Blank	Blank	Blank
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		

Sci-Fi

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**Blank**	**Inpt**
Input Level	Input Level	Blank	ETyp
Effect Type	Effect Type	Blank	EFrq
Effect Frequency	Effect Frequency	Blank	EAmt
Effect Amount	Effect Amount	**Blank**	**MTyp**
Mod Type	Mod Type	Blank	MFrq
Mod Frequency	Mod Frequency	Blank	MRat
Mod Rate	Mod Rate	Blank	Blank
Blank	Blank		
Blank	Blank		
Blank	Blank		
Blank	Blank		
	Blank		
	Blank		
	Blank		
	Blank		

Volume Plug-In MONO

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Master Bypass	**Master Bypass**	**Byp**	**Gn**
Gain	Gain	Mute	Blank
Bypass	Bypass	Blank	Blank
Mute	Mute	Blank	Blank
Blank	Blank		
Blank	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		
	Blank		

Volume Plug-In STEREO

CS-10:	*PC-1600/MM-16/DC-16:*	*HUI Switch row:*	*HUI encoder row:*
Left Gain	**Master Bypass**	**BypL**	**Gn L**
Left Bypass	Left Gain	MutL	Blank
Left Mute	Left Bypass	BypR	Gn R
Right Gain	Left Mute	MutR	Blank
Right Bypass	Right Gain		
Right Mute	Right Bypass		
Master Bypass	Right Mute		
Blank	Blank		
Blank	Blank		
Blank	Blank		
Blank	Blank		
Blank	Blank		
	Blank		
	Blank		
	Blank		
	Blank		

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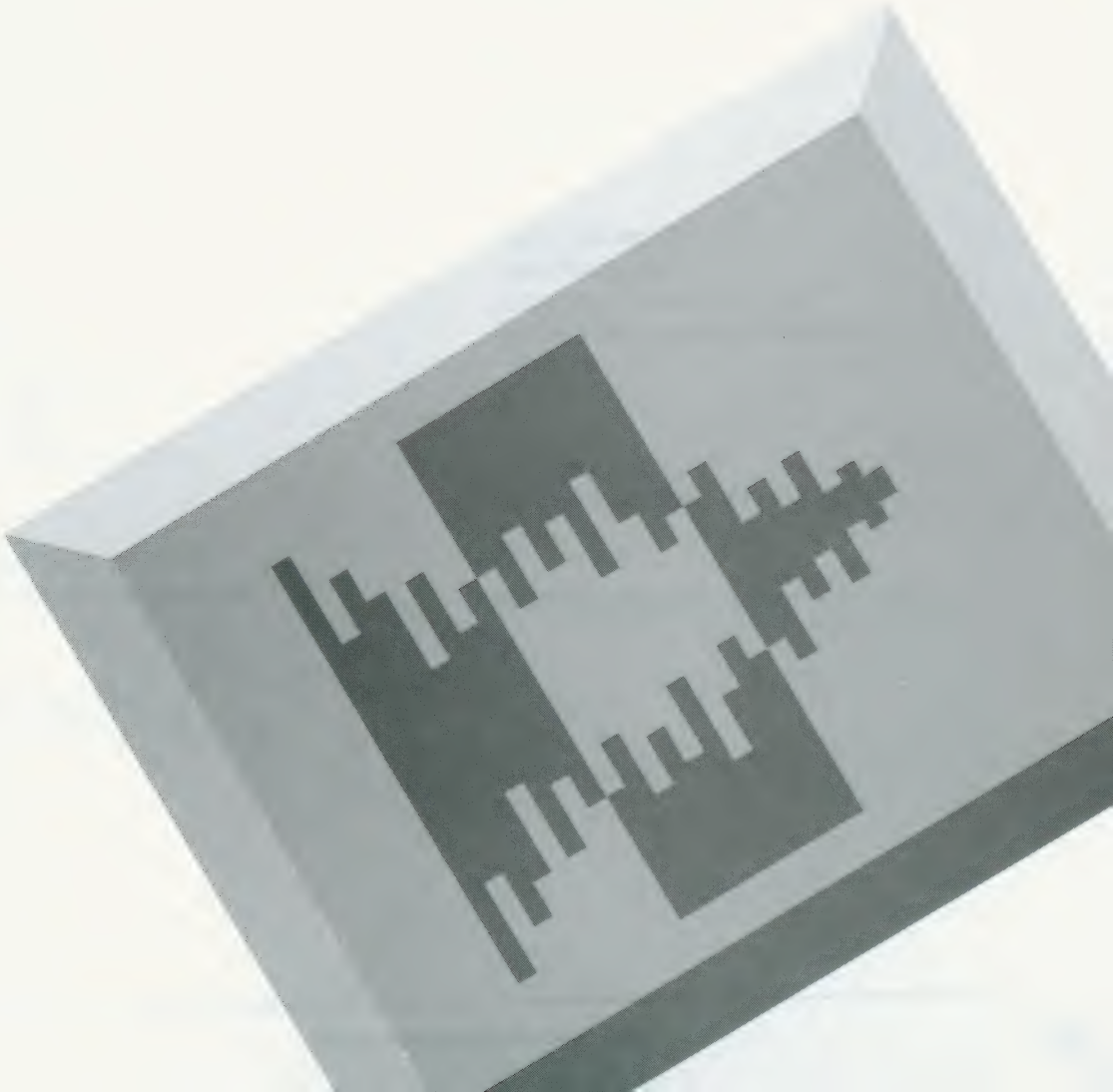

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